

Retail Catalogue.



“Innovative strength and technological competence strengthen our position at market.”



Foreword

Dear Partners,

There are many trends affecting the fixings industry: the growing number of construction materials, the joining of different materials, increasing requirements for design and execution, and digitalisation. As one of the world's leading specialists in fixing systems, we set the direction and shape the market. In the process, we provide you with the best and most cost-effective solutions for your fixing projects, quickly and flexibly. We are also a reliable partner for you when it comes to individual requests and customised solutions.

Our product portfolio includes chemical systems, steel anchors and plastic fixings. We also provide a wide range of screws, drill bits, adhesives, sealants, foams and product ranges tailored to specific applications, such as facade and thermal insulation systems, or the installation of sanitary, heating, ventilation and electrical systems. We attach high value to quality, safety and easy installation.

Our goal is to be the best in our respective industries with regard to both our products and our services. With our own national subsidiaries, sales partners, qualified sales representatives and engineers providing technical advice, we have a particularly dense network for providing individual consultation and support throughout the world. We are also amongst the pioneers in the industry in the digital environment and provide modern software tools, such as the design and construction software FIXPERIENCE and the Product Finder apps for end users and pros.

Our comprehensive range of training courses enables us to keep you up to date with regards to fixing solutions and regulations – at the fischer AKADEMIE, in more than 70 competence centers throughout Germany, on site at the user's premises, and in other various locations in Germany and Europe with the help of the fischer Tour Truck.

We hope you enjoy discovering and using our products.



Andreas Voll

*Chairman of the management board
of the fischer group of companies*



“Whoever chooses fischer receives more than a range of safe products. The aim is to always develop the best solutions for our customers across the globe.”

Besides the innovative products, this predominantly concerns support that is focused on the customer, and services designed to improve customer benefit.

A brand and its promise to perform.

Continuous improvement

The fischer ProzessSystem (fPS) we ensure that we are adapting and optimising our processes in line with customer requirements in a flexible manner and on a continuous basis. Thus we are glad having been awarded with the 1. place “Excellence in Operations” within the challenging contest “Factory of the Year”.



Award 2015
Excellence in
Operations

Safety that connects. Decisive quality

We don't make any compromises when it comes to the safety of our products. A whole host of our products are distinguished by comprehensive, up-to-date and international approvals. The fischer product range is well-positioned in all sectors of fixing technology – Steel, Nylon and Chemical fixings. In award-winning quality which continues to impress both professional clients and private customers with equal measure.



See ICC-ES
Evaluation Report
at www.icc-es.org



International approvals characterise many of our products.





Always on the pulse of time

At fischer, innovation is more than just a sum of the patents. We are open to new things and are prepared for change – always with the aim of offering our customers the greatest possible benefits. Over the years, our own development and production sites have been developing numerous fixing solutions for the most widening applications. Be it new production procedures or materials, such as renewable raw materials: We are carrying out the research for your safety and will continue to do so in the future. This gives us such great flexibility that we can even develop tailor-made customer solutions. This power to innovate has seen fischer become market leader in anchor technology and the fixing industry.

Our service to you

We are a reliable partner, one that will stand at your side and address your individual requirements with advice and action:

- Our products range from chemical systems to steel anchors through to plastic anchors.
- Competence and innovation through own research, development and production.
- Global presence and active sales service in over 100 countries.
- Qualified technical consulting for economical and compliant fastening solutions. Also on-site at the construction site requested.
- Training sessions, some with accreditation, at your premises or at the fischer academy.
- Design and construction software for demanding applications.

We take responsibility

Our active environment management policy means that we are helping to maintain an intact environment for our generation and for those that follow. The environment management policy at the Tumlingen site has been certified in line with DIN EN ISO 14001.

It fills us with particular pride that in 2020 we have received the most important and largest award in Europe in the field of sustainability: the German Sustainability Award - category large companies. This was in recognition of our holistic approach and the strategic anchoring of our sustainability management. With our greenline products we have launched the first range of fixings on the market that is based on renewable raw materials to more than 50%.



GreenLine assortment based on 50% regrowing raw materials











German Sustainability Award

Content

Selection guide of products and applications	7	1
Chemical fixings	11	2
High performance steel anchors	39	3
Frame fixings / stand-off installation	51	4
General fixings	67	5
Cavity fixings	81	6
Sanitary fixings	101	7
Foams and sealants	109	8
Adhesives	117	9
Drills and bits	121	10
Abrasives	129	11
Power tools	139	12
Services	145	13





2

Chemical fixings

Resin Capsule RM II with Threaded Rod FTR	12	
Universal Chemical FIS VS 300 T	16	
Polyester Injection Mortar FIS P Plus	22	
Epoxy Mortar FIS EB II	26	
Dispenser	29	
Injection anchor sleeves	30	
Cleaning Accessories	33	
Fill & Fix injection fixing	35	


3

High performance steel anchors

Hammerset anchor EA-N	40	
Rock Fixing Anchor GM	43	
Wedge Anchor FWA	45	
Bolt anchor FXA	48	






4

Frame fixings / Stand-off installation

Hammerfix N	52	
Frame fixing SXR	56	
Metal frame fixing F-M	62	







5

General fixings

Expansion plug S	68	
DuoPower	70	
DuoSeal	73	
Repair pad FixIt	76	
Doorstop TS	78	






6

Cavity fixings

Plasterboard fixing GK	82	
Nylon toggle DuoTec	84	
Plasterboard fixing DuoBlade	88	
Plasterboard fixing metal GKM	90	
Metal cavity fixing HM	92	
Spring-toggle KD, KDH, KM	96	




8

PU Foams, Sealants, Repair mortar & Aerosol

Antifungal General Purpose - Silicone DMS	110	
General purpose quick sealant GP-SI	111	
Repair mortar DEC	113	
PU Foam Spray (B3)	114	
Zinc Alu Spray	115	

7

Sanitary fixings

Sanitary Fixing WB2	102	
Sanitary Fixing WB 5N	104	
Sanitary Fixing WB 9N	106	




9

Adhesives

CRAFT SB Adhesive	118	
Crystal MS Adhesive	119	

10

Drills and bits

SDS Plus Drill Bit II Pointer - Economical	122	
Chisel - SDS Plus & Max	125	
High Speed Steel Drill Bits - HSS	127	

12

Power tools

Power Drive F35	140	
Power Drive F35 - Spare Parts	142	

11

Abrasives

Metal Grinding Disc	130	
Metal Cutting Disc	131	
Metal Cutting Disc for Chop Saw Machines	132	
Ultra-Thin Stainless-Steel Cutting Disc	133	
Flap Disc - Aluminium Oxide	134	
Flap Disc - Zirconia Inox	135	
Glass Fiber - Safety Guarantee	136	

13









Services

Our Service to you	146
Subsidiaries	152



2

Chemical fixings

Resin Capsule RM II with Threaded Rod FTR	12	
Universal Chemical FIS VS 300 T	16	
Polyester Injection Mortar FIS P Plus	22	
Epoxy Mortar FIS EB II	26	
Dispenser	29	
Injection anchor sleeves	30	
Cleaning Accessories	33	
Fill & Fix injection fixing	35	

Resin Capsule RM II with Threaded Rod FTR

The bonded anchor for cracked concrete with threaded rod **FTR** without drill hole cleaning



Crash barriers



Collision protection

2

Applications

- Steel constructions
 - Guard rails
 - Staircases
 - Column bases
 - Machines
 - Masts
- Ideal for:
- Overhead installations
 - Water-filled drill holes

Advantages

- RM II is the first bonded anchor with threaded rod FTR for cracked and non-cracked concrete that does not require drill hole cleaning. This allows for a rapid working progress and an economic installation.
- Moreover, there is a reduced exposition

- to drill dust on the building site. This increases the safety for the user.
- The pre-portioned resin capsule is easy to install and especially suitable for individual applications and overhead installations.

Certificates



ETA-16/0340, for cracked concrete



Fire resistance classification R120

Building materials

- Approved for:
- Concrete C20/25 to C50/60, cracked and non-cracked
- Also suitable for:
- Natural stone with dense structure

Versions

- Zinc-plated steel
- Hot-dip galvanised steel

Functioning

- The resin anchor RM II is suitable for pre-positioned installation when combined with the threaded rod FTR.
- The 2-component resin capsule RM II contains styrene-free vinyl ester resin and hardener.
- The threaded rod FTR is set using a hammer drill and the accompanying setting tool in rotating and hitting motions.
- During setting, the oblique edge of the FTR destroys the capsule, and mixes and activates the mortar.
- The mortar bonds the entire surface of the threaded rod with the drill hole wall and seals the drill hole.

For use with

FTR

15

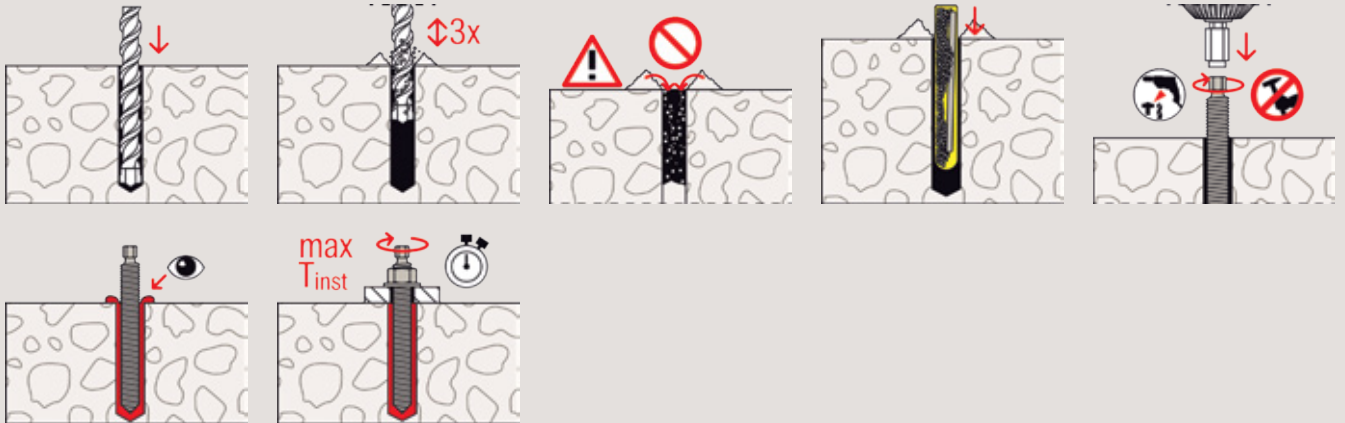


Anchors & sleeves page

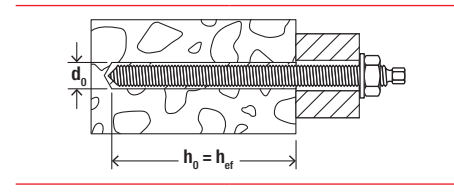
30



Installation - pre-positioned in concrete with capsule RM II and FTR



2



Technical data

Resin capsule RM II



RM II

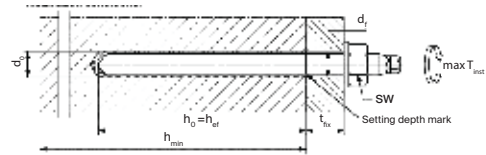
Item	Item No.	Approval ETA	Drill hole diameter	Min. drill hole depth	Effect. anchorage depth	Suitable for threaded rod	Sales unit [pcs]
			d_0 [mm]	h_1 [mm]	h_{ef} [mm]		
RM II 8	539796	●	10	80	80	FTR 8	10
RM II 10	539797	●	12	90	90	FTR 10	10
RM II 12	539798	●	14	110	110	FTR 12	10
RM II 14	539799	—	16	120	120	-	10
RM II 16	539800	●	18	125	125	FTR 16	10
RM II 20/22	539802 ¹⁾	●	25	170 / 190	170 / 190	FTR 20	10
RM II 24	539803	●	28	210	210	FTR 24	5

1) RM II 20/22 in combination with FTR 22 and effect. anchorage depth of 190 mm is not part of the assessment.

Curing times

RM II Concrete temperature [°C]	Minimum curing time t_{cure}	
	[hrs.]	[min.]
-15 - -10	30	-
> -10 - -5	16	-
> -5 - 0	10	-
> 0 - +5	-	45
> +5 - +10	-	30
> +10 - +20	-	20
> +20 - +30	-	5
> +30 - +40	-	3

* In wet concrete and flooded holes the using time has to be doubled



Diameter of clearance hole in the fixture¹⁾
Pre-positioned anchorage

Loads

2 Resin capsule RM II with threaded rod FTR

Permissible loads of a single anchor^{1) 2)} in normal concrete of strength class C20/25.
For the design the complete current assessment ETA-16/0340 has to be considered.

Type	Material/ surface ³⁾	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum installation- torque $T_{inst,max}$ [Nm]	Cracked concrete				Non-cracked concrete			
					Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads				Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads			
					$N_{perm}^{4)}$ [kN]	$V_{perm}^{4)}$ [kN]	$s_{min}^{4)}$ [mm]	$c_{min}^{4)}$ [mm]	$N_{perm}^{4)}$ [kN]	$V_{perm}^{4)}$ [kN]	$s_{min}^{4)}$ [mm]	$c_{min}^{4)}$ [mm]
RM II 8	5.8	80	110	10	-	-	-	-	9.0	6.3	40	40
RM II 10	5.8	90	120	20	4.5	9.7	45	45	13.5	9.7	45	45
RM II 12	5.8	110	140	40	6.6	14.3	55	55	19.7	14.3	55	55
RM II 16	5.8	125	170	60	10.0	23.9	65	65	27.3	26.9	65	65
RM II 20	5.8	170	220	120	17.0	40.7	85	85	43.3	42.3	85	85
RM II 24	5.8	210	270	150	25.1	60.3	105	105	59.4	60.6	105	105

¹⁾ Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$. Accurate data see ETA.

²⁾ The specified loads are valid for anchorages in dry and damp concrete. For temperatures in the anchoring substrate up to 50 °C (resp. short term up to 80 °C). Drill hole cleaning as per specification in the ETA. The factor Ψ_{sus} for sustained load was taken into account with 1.0.

³⁾ Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).

⁴⁾ In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.

Resin Capsule RM II with Threaded Rod FTR

Threaded Rod FTR (Steel Quality 5.8) with Pitched Area and Hexagonal Installation Drive In Zinc-Plated and Hot-Dipped Galvanized Steel



FTR - Zinc-plated steel FTR - Hot-dipped galvanized steel

Advantages

- FTR threaded rod can be used with fischer injection mortar or 2 component resin capsule RM II
- The resin adheres to the entire surface of the threaded rod, bonding it to the wall of the drilled hole.
- For pre-positioned installation.
- Carbon steel grade 5.8
- FTR threaded rods are supplied with an easy-to-use hexagonal installation drive and a setting tool included in each package.
- Available thread diameter options ranging from 8 mm to 24 mm.
- Zinc-plated steel version for indoor use.
- Hot-dipped galvanized version for temporary outdoor fixings.

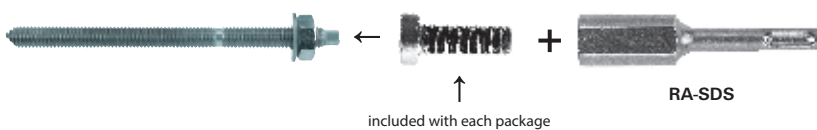
Technical data

Item	Art.No.	Thread d_1 [mm]	Nominal Drill d_0 [mm]	Total length d_0 [mm]	Min. anchorage depth h_{ef} [mm]	Max. fixing thickness t_{fix} [mm]	Min. drill depth prior to insertion mode h_0 [mm]	Width across flat SW [mm]	Installation torque T_{inst} [Nm]	Related capsule C_{min}^a	Qty. per box [pcs]
Zinc-plated steel											
FTR M8 x 110	45809	8	10	110	80	16	80	13	10	539796 RM II 8	10
FTR M10 x 130	45810	10	12	130	90	22	90	17	20	539797 RM II 10	10
FTR M10 x 165	52248	10	12	165	90	57	90	17	20	539797 RM II 10	10
FTR M12 x 160	45812	12	14	160	110	30	110	19	40	539798 RM II 12	10
FTR M12 x 220	52255	12	14	220	110	90	110	19	40	539798 RM II 12	10
FTR M16 x 165	519121	16	18	165	125	20	125	24	60	539800 RM II 16	10
FTR M16 x 190	45813	16	18	190	125	38	125	24	60	539800 RM II 16	10
FTR M16 x 250	52256	16	18	250	125	98	125	24	60	539800 RM II 16	10
FTR M20 x 260	45814	20	25	260	170	70	170	30	120	539802 RM II 20/22	10
FTR M24 x 300	45815	24	28	300	210	65	210	36	150	539803 RM II 24	5
FTR M24 x 350	502750	24	28	350	210	115	210	36	150	539803 RM II 24	5
Hot-dipped galvanized											
FTR M8 x110 hgd	502914	8	10	110	80	16	80	13	10	539796 RM II 8	10
FTR M10 x 130 hgd	502915	10	12	130	90	22	90	17	20	539797 RM II 10	10
FTR M12 x 160 hgd	502916	12	14	160	110	30	110	19	40	539798 RM II 12	10
FTR M16 x 190 hgd	502917	16	18	190	125	38	125	24	60	539800 RM II 16	10
FTR M20 x 260 hgd	502918	20	25	260	170	70	170	30	120	539802 RM II 20/22	10
FTR M24 x 300 hgd	502919	24	28	300	210	65	210	36	150	539803 RM II 24	5

Setting tool & accessories

Setting tool with SDS adapter

For simple installation of bonded anchors for example resin anchor R, Highbond anchor FHB II



Item	Art.No	Fits	Sales unit [pcs]
RA-SDS	062420	Adapter suitable to fit set screw	1

Accessories Drill hole cleaning please follow page no 34

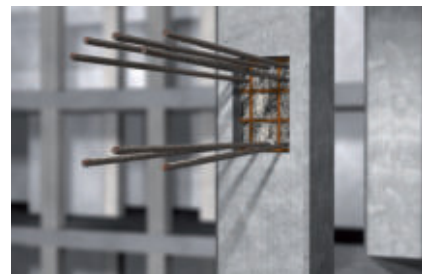
Universal Injection mortar FIS VS plus 300 T

The versatile universal injection mortar for anchorings in masonry and cracked concrete

2



Rescue ladders



Rebar Connections

Applications

- Steelwork constructions
- Timber constructions
- Guard rails
- Façades
- Staircases
- Steel brackets
- Machines
- Masts
- Awnings
- Canopies
- Gates
- Consoles
- Pipelines
- Gratings
- Satellite antennas

Advantages

- The FIS V Plus injection mortar has numerous system approvals, such as in cracked and non-cracked concrete, masonry and for special applications.
- The approved use in water-filled drill holes enables a wide range of applications, even under harsh environmental conditions.
- The FIS VS Plus Low Speed has an extended processing time that prevents the premature hardening of the mortar at higher temperatures. It is ideally suited to large drill hole depths.
- The ETA assessment for a service life of 100 years offers permanent safety for all applications.
- The extensive range of accessories is ideally suited to the FIS V Plus injection mortar family, increases the great flexibility of the system and thus allows for a broad range of applications.

Certificates



ETA-02/0024, for cracked concrete



See ICC-ES Evaluation Report at www.icc-es.org



ETA-08/0266, Post-installed rebar connections

ETA-10/0383, for masonry



Fire resistance classification R120



Building materials

Approved for anchorings in:

- Concrete C20/25 to C50/60, cracked and non-cracked
- Hollow blocks made from lightweight concrete
- Hollow blocks made from concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Solid sand-lime brick
- Aerated concrete
- Solid brick

Approved for:

- Rebar connections
- Remedial wall tie VBS 8
- Weather facing reconstruction system FWS II
- Stand-off installation TherMax

Functioning

- The FIS VS 300 T is a 2-component injection mortar based on vinyl ester hybrid.
- Resin and hardener are stored in two separate chambers and are not mixed and activated until extrusion through the static mixer.
- The mortar is extruded bubble free from the drill hole base.
- The mortar bonds the entire surface of the anchor with the drill hole wall and seals the drill hole.
- The injection cartridges are quick and easy to use with the fischer dispensers.
- Partially used cartridges can be reused, simply by changing the static mixer.

For use with

FTR 15



Dispenser page 29



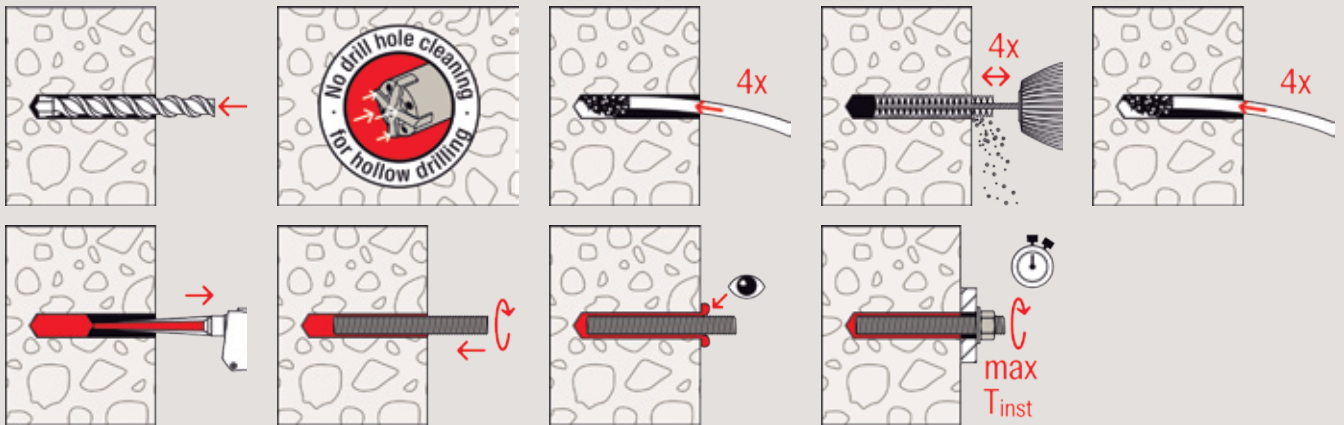
Anchors & sleeves page 30



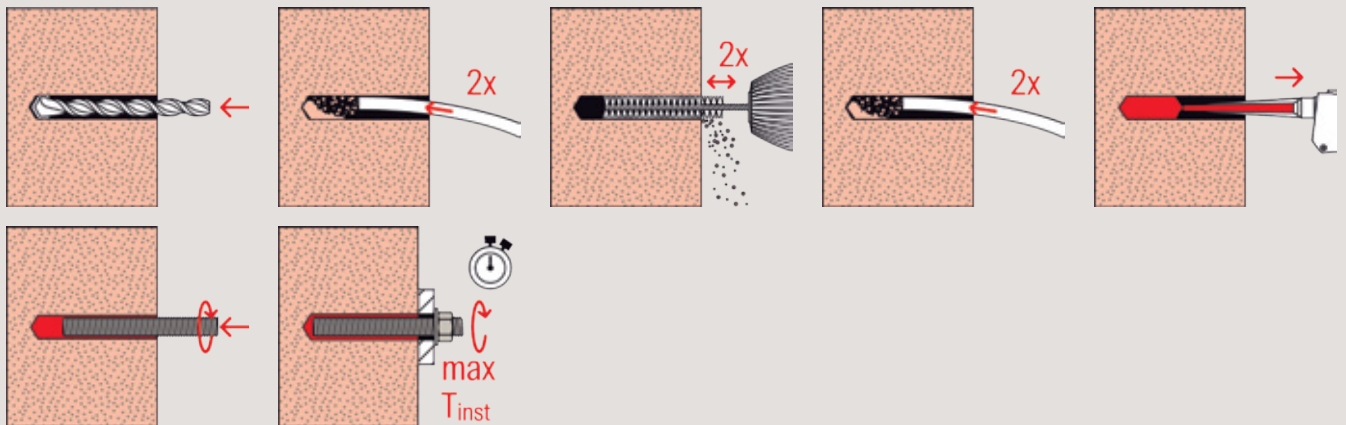
Accessories page 33



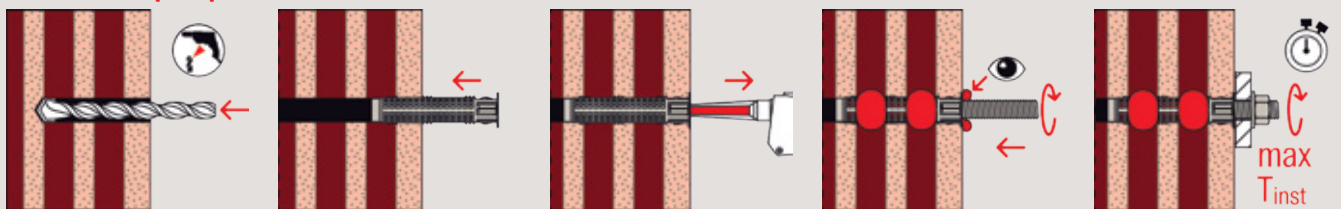
Installation pre-positioned in concrete with Fis VS 300T and FTR



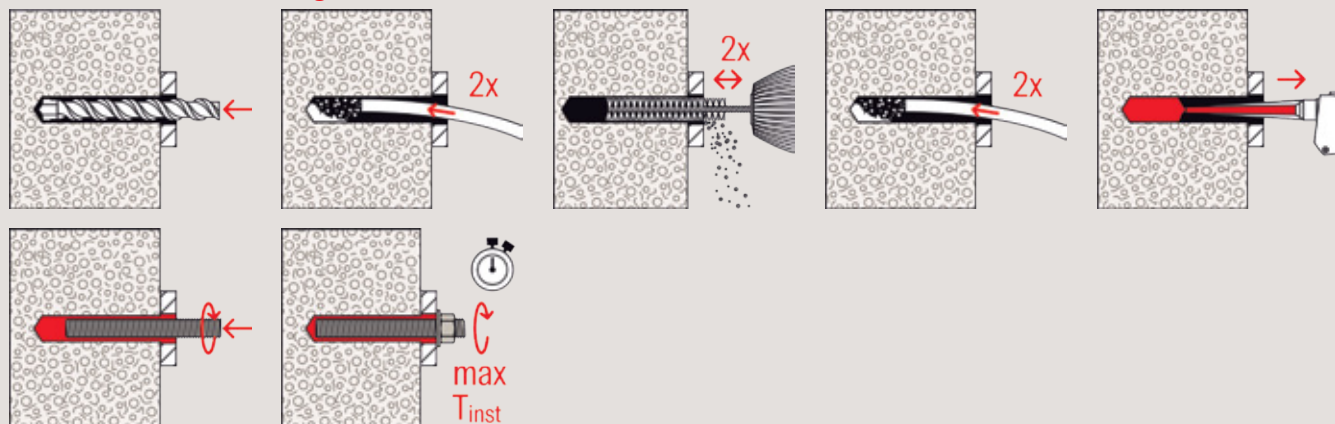
Installation pre-positioned in solid brick with Fis VS 300T and FTR



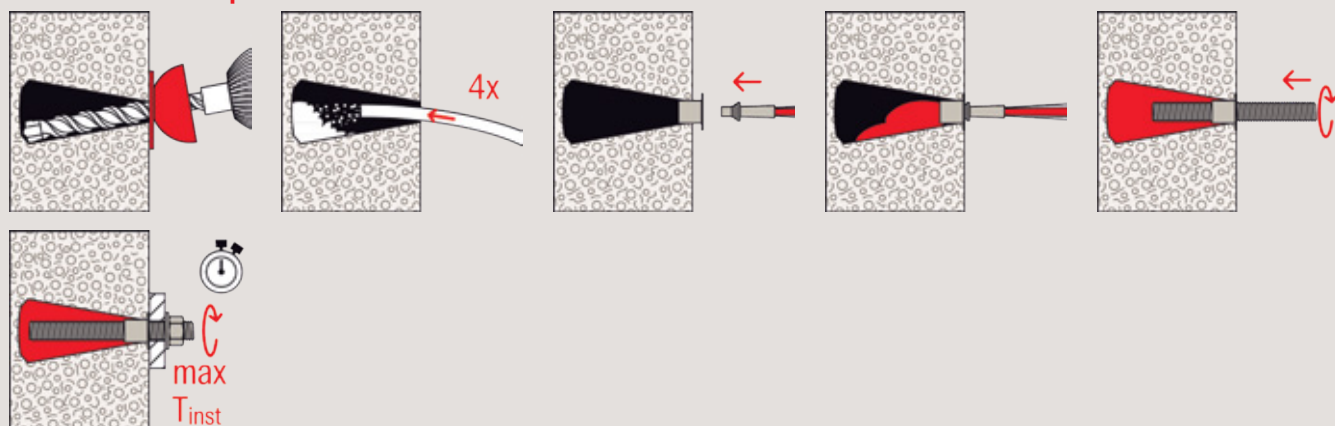
Installation pre-positioned in hollow blocks with Fis VS 300T and FTR



Installation - Push through in aerated concrete with FIS VS 300 T and FTR



Installation - Pre-positioned in undercut drill hole in aerated concrete with FIS VS 300 T and FTR



Technical data

Injection mortar FIS VS LOW SPEED



Item	Item No.	Approval		Languages on the cartridge	Scale unit	Contents	Sales unit [pcs]
		ETA	ICC				
FIS VS LOW SPEED 300 T	563280	●	●	DE, EN, FR, NL, ES, PT	150	1 cartridge 300 ml, 2 x FIS MR Plus	12
FIS MR Plus	545853	—	—	—	—	10 static mixer FIS MR Plus	10
KP M1	53115	—	—	—	—	1 applicator gun	1

Curing times

Temperature at anchoring base [°C]	Maximum processing time t_{work} FIS VS Low Speed [min.]	Minimum curing time $t_{cure}^{1)}$ FIS VS Low Speed	
		[hrs.]	[min.]
-10 – -5 ²⁾	-	-	-
> -5 – 0 ²⁾	-	-	-
> 0 – +5 ²⁾	-	6	-
> +5 – +10	20	3	-
> +10 – +20	10	2	-
> +20 – +30	6	-	60
> +30 – +40	4	-	30

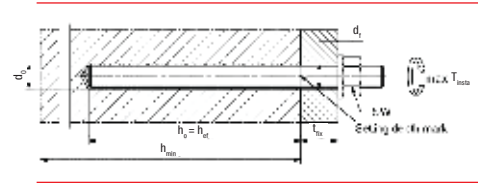
1) In wet concrete or water filled holes the curing times must be doubled.

2) Minimal cartridge temperature +5 °C

Drill hole diameter

FIS VS 300 T with threaded rod									
		M8	M10	M12	M16	M20	M24	M27	M30
Anchor type									
Drill hole diameter	d_0 (mm)	10	12	14	18	24	28	28	35

FIS VS 300 T with rebar									
		T8	T10	T12	T14	T16	T20	T25	T28
Anchor type									
Drill hole diameter	d_0 (mm)	10/12	12/14	14/16	18	20	25	30	35



Loads

Injection system FIS VS with threaded rod FTR

Permissible loads of a single anchor^{1) 2)} in normal concrete of strength class C20/25.
For the design the complete current assessment ETA-02/0024 has to be considered.

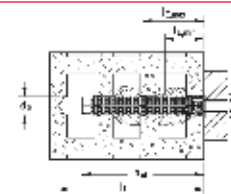
Type	Material / surface ³⁾	Effective anchorage depth h _{ef} [mm]	Minimum member thickness h _{min} [mm]	Maximum installation torque T _{inst, max} [Nm]	Cracked concrete				Non-cracked concrete			
					Permissible tension (N _{perm} ⁴⁾) and shear loads (V _{perm} ⁴⁾ ; minimum spacing (s _{min} ⁴⁾) and edge distances (c _{min} ⁴⁾) with reduced loads				Permissible tension (N _{perm} ⁴⁾) and shear loads (V _{perm} ⁴⁾ ; minimum spacing (s _{min} ⁴⁾) and edge distances (c _{min} ⁴⁾) with reduced loads			
					N _{perm} ⁴⁾ [kN]	V _{perm} ⁴⁾ [kN]	s _{min} ⁴⁾ [mm]	c _{min} ⁴⁾ [mm]	N _{perm} ⁴⁾ [kN]	V _{perm} ⁴⁾ [kN]	s _{min} ⁴⁾ [mm]	c _{min} ⁴⁾ [mm]
FIS A M 8	5.8	60	100	10	3.9	6.3	40	40	7.9	6.3	40	40
	5.8	80	110	10	5.3	6.3	40	40	9.0	6.3	40	40
	5.8	160	190	10	9.0	6.3	40	40	9.0	6.3	40	40
	R-70	60	100	10	3.9	6.0	40	40	7.9	6.0	40	40
	R-70	80	110	10	5.3	6.0	40	40	9.9	6.0	40	40
	R-70	160	190	10	9.9	6.0	40	40	9.9	6.0	40	40
FIS A M 10	5.8	60	100	20	5.4	9.7	45	45	9.9	9.7	45	45
	5.8	90	120	20	8.1	9.7	45	45	13.8	9.7	45	45
	5.8	200	230	20	13.8	9.7	45	45	13.8	9.7	45	45
	R-70	60	100	20	5.4	9.2	45	45	9.9	9.2	45	45
	R-70	90	120	20	8.1	9.2	45	45	14.8	9.2	45	45
	R-70	200	230	20	15.7	9.2	45	45	15.7	9.2	45	45
FIS A M 12	5.8	70	100	40	7.5	14.3	55	55	13.7	14.3	55	55
	5.8	110	140	40	11.8	14.3	55	55	20.5	14.3	55	55
	5.8	240	270	40	20.5	14.3	55	55	20.5	14.3	55	55
	R-70	70	100	40	7.5	13.7	55	55	13.7	13.7	55	55
	R-70	110	140	40	11.8	13.7	55	55	21.7	13.7	55	55
	R-70	240	270	40	22.5	13.7	55	55	22.5	13.7	55	55
FIS A M 16	5.8	80	120	60	11.5	23.0	65	65	16.8	26.9	65	65
	5.8	125	170	60	18.0	26.9	65	65	29.9	26.9	65	65
	5.8	320	360	60	37.6	26.9	65	65	37.6	26.9	65	65
	R-70	80	120	60	11.5	23.0	65	65	16.8	25.2	65	65
	R-70	125	170	60	18.0	25.2	65	65	29.9	25.2	65	65
	R-70	320	360	60	42.0	25.2	65	65	42.0	25.2	65	65
FIS A M 20	5.8	90	140	120	14.0	28.0	85	85	20.0	40.0	85	85
	5.8	170	220	120	28.0	42.3	85	85	48.3	42.3	85	85
	5.8	400	450	120	58.6	42.3	85	85	58.6	42.3	85	85
	R-70	90	140	120	14.0	28.0	85	85	20.0	39.4	85	85
	R-70	170	220	120	28.0	39.4	85	85	48.3	39.4	85	85
	R-70	400	450	120	65.7	39.4	85	85	65.7	39.4	85	85
FIS A M 24	5.8	96	160	150	15.4	30.8	105	105	22.0	44.1	105	105
	5.8	210	270	150	33.9	60.6	105	105	67.9	60.9	105	105
	5.8	480	540	150	77.6	60.6	105	105	84.3	60.9	105	105
	R-70	96	160	150	15.4	30.8	105	105	22.0	44.1	105	105
	R-70	210	270	150	33.9	56.8	105	105	67.9	56.8	105	105
	R-70	480	540	150	77.6	56.8	105	105	94.3	56.8	105	105
FIS A M 30	5.8	120	190	300	21.5	43.1	140	140	30.8	61.6	140	140
	5.8	280	350	300	50.3	96.0	140	140	106.8	96.0	140	140
	5.8	600	670	300	107.7	96.0	140	140	133.8	96.0	140	140
	R-70	120	190	300	21.5	43.1	140	140	30.8	61.6	140	140
	R-70	280	350	300	50.3	90.2	140	140	106.8	90.2	140	140
	R-70	600	670	300	107.7	90.2	140	140	150.1	90.2	140	140

¹⁾ Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$. Accurate data see ETA.

²⁾ The specified loads are valid for anchorages in dry and damp concrete. For temperatures in the anchoring substrate up to 50 °C (resp. short term up to 80 °C). Drill hole cleaning as per specification in the ETA. The factor Ψ_{sus} for sustained load was taken into account with 1.0.

³⁾ Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).

⁴⁾ In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.



Loads

Injection system FIS V with threaded rod FTR in solid and perforated masonry + FIS HK + FIS HL + FIS HN

Permissible loads^{1) 2)} for a single anchor in masonry for pre-positioned installation.
For the design the complete current assessment ETA-10/0383 has to be considered.

Type	Compressive brick strength f_b [N/mm ²]	Brick raw density ρ [kg/dm ³]	Minimum brick dimensions ³⁾ (L x W x H) [mm]	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum installation torque $T_{inst,max}$ [Nm]	Permissible tensile load ⁴⁾ N_{perm} [kN]	Permissible shear load ⁴⁾ V_{perm} [kN]	Minimum-spacing ⁵⁾ $s_{min} \parallel / s_{min} \perp$ [mm]	Characteristic resp. minimum edge distance $c_{cr} = c_{min}$ [mm]
Solid brick Mz, NF, acc. to EN 771-1										
M6	≥ 12	≥ 1.8	240 x 115 x 71	≥ 50	115	4	1.14	0.71	240 / 75	100
M8	≥ 12	≥ 1.8	240 x 115 x 71	≥ 50	115	10	1.14	0.71	240 / 75	100
M10	≥ 12	≥ 1.8	240 x 115 x 71	80	115	10	1.42	1.14	240 / 75	100
M10	≥ 12	≥ 1.8	240 x 115 x 71	200	240	10	3.43	2.43	240 / 75	100
M12	≥ 12	≥ 1.8	240 x 115 x 71	80	115	10	1.57	1.14	240 / 75	100
M12	≥ 12	≥ 1.8	240 x 115 x 71	200	240	10	2.29	3.28	240 / 75	100
Solid sand-lime brick KS, acc. to EN 771-2										
M6	≥ 12	≥ 1.8	240 x 115 x 71	50	115	3	1.14	0.42	80 / 150	60
M6	≥ 12	≥ 1.8	240 x 115 x 71	100	115	3	1.57	0.89	80 / 300	60
M8	≥ 12	≥ 1.8	240 x 115 x 71	50	115	5	1.14	0.42	80 / 150	60
M8	≥ 12	≥ 1.8	240 x 115 x 71	100	115	5	2.29	0.89	80 / 300	60
M10	≥ 12	≥ 1.8	240 x 115 x 71	100	115	15	1.57	0.57	80 / 300	60
M10	≥ 12	≥ 1.8	240 x 115 x 71	200	240	15	3.42	0.57	80 / 600	60
M12	≥ 12	≥ 1.8	240 x 115 x 71	100	115	15	1.28	0.57	80 / 300	60
M12	≥ 12	≥ 1.8	240 x 115 x 71	200	240	15	3.42	0.57	80 / 600	60
M16	≥ 12	≥ 1.8	240 x 115 x 71	100	115	25	1.57	0.57	80 / 300	60
M16	≥ 12	≥ 1.8	240 x 115 x 71	200	240	25	3.42	0.57	80 / 600	60
Vertically perforated brick Hlz, acc. to EN 771-1³⁾										
M6 / M8 with FIS H 12 x 85 K	≥ 12	≥ 1.0	370 x 240 x 237	85	240	2	0.34	0.43	100 / 100	100
M8 / M10 with FIS H 16 x 130 K	≥ 12	≥ 1.0	370 x 240 x 237	130	240	2	0.86	0.57	100 / 100	100
M12 / M16 with FIS H 20 x 130 K	≥ 12	≥ 1.0	370 x 240 x 237	130	240	2	1.14	0.57	100 / 100	100
Perforated sand-lime brick KSL, acc. to EN 771-2³⁾										
M6 / M8 with FIS H 12 x 85 K	≥ 12	≥ 1.4	240 x 175 x 113	85	175	2	0.71	0.71	100 / 115	60
M8 / M10 with FIS H 16 x 130 K	≥ 12	≥ 1.4	240 x 175 x 113	130	175	2	1.00	1.29	100 / 115	80
M12 / M16 with FIS H 20 x 85 K	≥ 12	≥ 1.4	240 x 175 x 113	85	175	2	1.00	1.14	100 / 115	80
Lightweight concrete hollow block Hbl, acc. EN 771-3³⁾										
M6 / M8 with FIS H 12 x 85 K	≥ 2	≥ 1.0	362 x 240 x 240	85	240	2	0.43	0.26	100 / 240	60
M6 / M8 with FIS H 12 x 85 K	≥ 4	≥ 1.0	362 x 240 x 240	85	240	2	0.86	0.57	100 / 240	60
M8 / M10 with FIS H 16 x 85 K	≥ 2	≥ 1.0	362 x 240 x 240	85	240	2	0.43	0.26	100 / 240	60
M8 / M10 with FIS H 16 x 85 K	≥ 4	≥ 1.0	362 x 240 x 240	85	240	2	0.86	0.57	100 / 240	60
M12 / M16 with FIS H 20 x 200 K	≥ 2	≥ 1.0	362 x 240 x 240	200	240	2	0.71	0.26	100 / 240	60
M12 / M16 with FIS H 20 x 200 K	≥ 4	≥ 1.0	362 x 240 x 240	200	240	2	1.57	0.57	100 / 240	60
Aerated concrete acc. to EN 771-4⁶⁾										
M8	≥ 2	≥ 0.35	-	100	130	1	0.54	0.43	250 / 250	100
M8	≥ 4	≥ 0.50	-	200	230	8	1.07	0.71	80 / 80	100
M10	≥ 2	≥ 0.35	-	100	130	2	0.54	0.43	250 / 250	100
M10	≥ 4	≥ 0.50	-	200	230	12	1.79	0.71	80 / 80	100
M12	≥ 2	≥ 0.35	-	100	130	2	0.71	0.54	250 / 250	100
M12	≥ 4	≥ 0.50	-	200	230	16	1.79	0.71	80 / 80	100
M16	≥ 2	≥ 0.35	-	100	130	2	0.71	0.43	250 / 250	100
M16	≥ 4	≥ 0.50	-	200	230	20	1.79	0.71	80 / 80	100

¹⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. Load values are valid for zinc-plated steel, stainless steel R and highly corrosion-resistant steel HCR. In perforated bricks and hollow blocks threaded rod FIS A in combination with anchor sleeve FIS H K.

²⁾ The given loads are valid for installation and use of fixations in dry masonry - use category d/d - for temperatures in the substrate up to 50 °C (resp. short term up to 80 °C) and drill hole cleaning according to assessment. The given brick types in combination with the permissible loads are an extract of the assessment.

³⁾ More information about, e.g. hole patterns, assortment of anchor sleeves FIS H K see assessment.

⁴⁾ In the case of combinations of tensile and shear loads, bending moments and reduced edge and axial spacings (anchor groups), the design must be carried out in accordance with the provisions of the complete assessment.

⁵⁾ Minimum feasible spacing resp. edge distance. Details as well as to the distances to joints see assessment.

⁶⁾ Cylindrical drill hole.

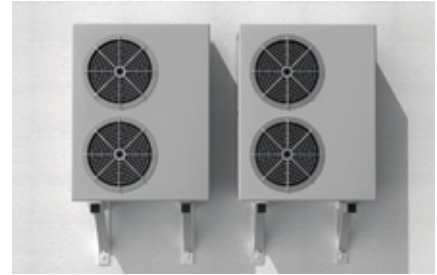
Injection mortar FIS P Plus

The approved injection mortar for anchorings in masonry and non-cracked concrete

2



Cable duct



Air conditioning units

Applications

- Cable ducts
- Air conditioning support
- Awnings and more

Advantages

- With FIS P Plus, anchorings in masonry and non-cracked concrete for which approval is relevant can be realised in a particularly economical manner.
- FIS P Plus 300 T can be used with stable,

standard silicone injection dispensers. No special equipment is required. As a result, procurement costs can be reduced on the basis of polyester resin.

Assessment/Approval



ETA-11/0419, for masonry

ETA-18/0383, for non-cracked concrete

Building materials

- Concrete C20/25 to C50/60, non-cracked
 - Vertically perforated brick
 - Perforated sand-lime brick
 - Solid sand-lime brick
 - Perforated blocks made from lightweight concrete
 - Solid brick
 - Aerated concrete
- Also suitable for:
- Solid brick made from lightweight concrete

Functioning

- FIS P Plus is a 2-component injection mortar based on polyester resin.
- Resin and hardener are stored in two separate chambers and are not mixed and activated until extrusion through the static mixer.
- Partially used cartridges can be reused, simply by changing the static mixer.
- FIS plus can be used with injection anchor sleeve FIS HK
- Related accessories for use in masonry and non-cracked concrete can be found on page 33.

For use with

FTR 15



Dispenser page 29



Anchors & sleeves page

30

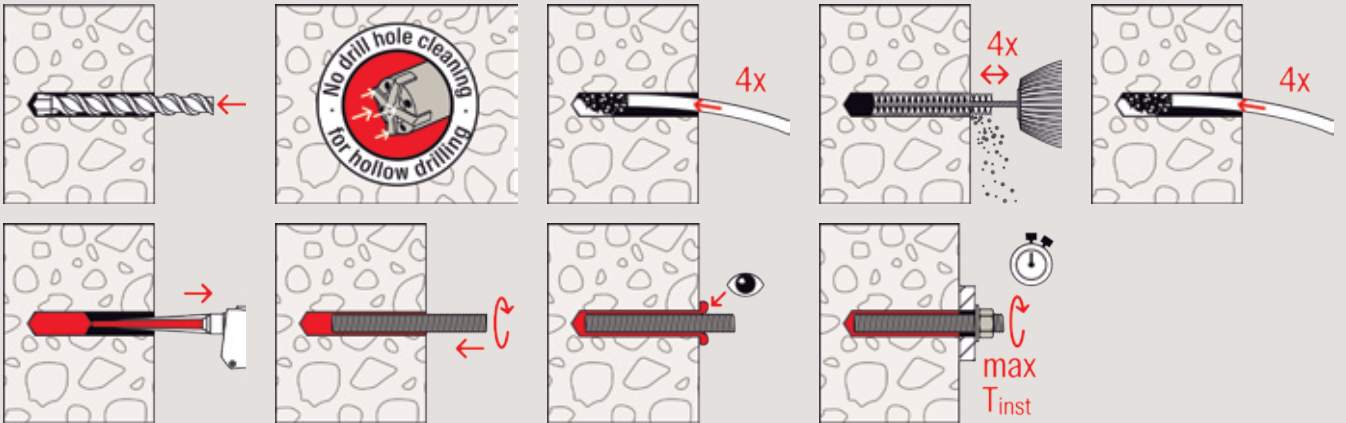


Accessories page

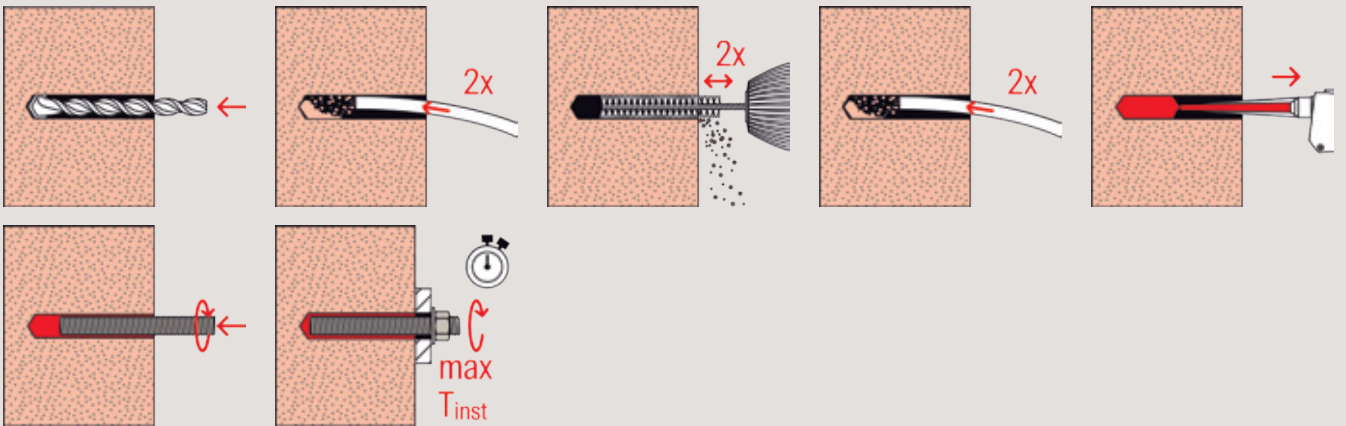
33



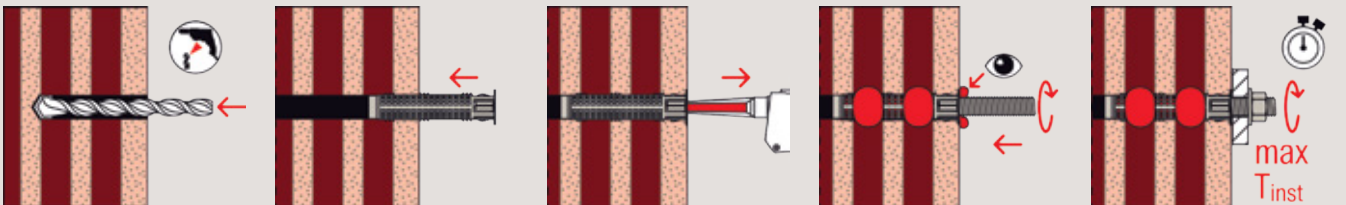
Installation pre-positioned in concrete with FIS P Plus and FIS A / FTR



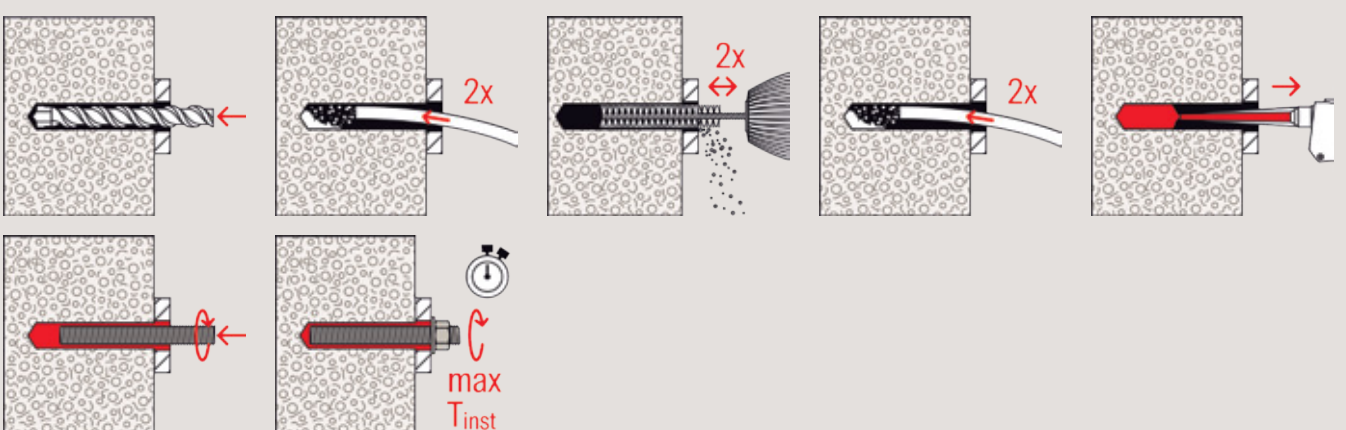
Installation pre-positioned in solid brick with FIS P Plus and FIS A / FTR



Installation pre-positioned in hollow blocks with FIS P Plus and FIS HK + FIS A / FTR



Installation pre-positioned in aerated concrete with FIS P Plus and FIS A / FTR



Technical data

Injection mortar FIS P Plus



FIS P Plus 300 T



KP M1



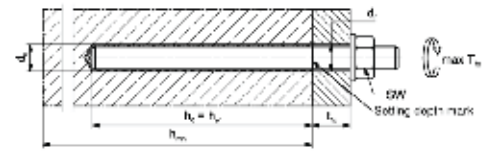
FIS MR Plus

Item	Item No.	Approval	Languages on the cartridge	Scale unit	Contents	Sales unit [pcs]
		ETA				
FIS P Plus 300 T	523226	●	EN, ES, PT	150	1 cartridge 300 ml, 1 x FIS MR Plus	12
FIS MR Plus	545853	—	—	—	10 static mixer FIS MR Plus	10
KP M1	53115	—	—	—	Application	1

Curing times

FIS P Plus Temperature at anchoring base [°C]	Maximum processing time t_{work} [min.]	Minimum curing time ¹⁾ t_{cure}	
		[hrs.]	[min.]
> 0 – +5	13	3	–
> +5 – +10	9	–	90
> -10 – +20	5	–	60
> +20 – +30	4	–	45
> +30 – +40	2	–	35

1) In wet concrete or water filled holes the curing times must be doubled.



Diameter of clearance hole in the fixture d_f
 Pre-positioned installation d_f
 Push through installation d_f
 Nominal drill hole diameter d_0
 Minimum thickness of concrete member h_{min}
 Width across flats SW

Loads

Injection system FIS P Plus with threaded rod FIS A & FTR

Permissible loads of a single anchor^{1) 2)} in normal concrete of strength class C20/25.
 For the design the complete current assessment ETA-18/0383 has to be considered.

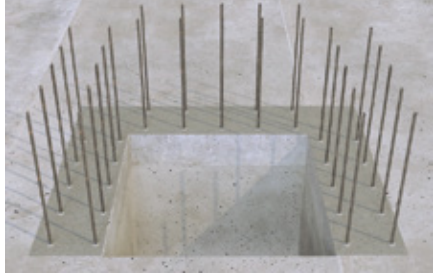
Type	Material / surface ³⁾	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum installation torque $T_{inst, max}$ [Nm]	Non-cracked concrete			
					Permissible tension ($N_{perm}^{4)}$) and shear loads (V_{perm}^{4}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads			
					N_{perm}^{4} [kN]	V_{perm}^{4} [kN]	s_{min}^{4} [mm]	c_{min}^{4} [mm]
FIS A M 8	5.8	60	100	10	3.9	5.1	40	40
	5.8	80	110	10	5.2	5.1	40	40
	5.8	160	190	10	9.0	5.1	40	40
	R-70	60	100	10	3.9	6	40	40
	R-70	80	110	10	5.2	6	40	40
	R-70	160	190	10	9.9	6	40	40
FIS A M 10	5.8	60	100	20	4.9	8.6	45	45
	5.8	90	120	20	7.3	8.6	45	45
	5.8	200	230	20	13.8	8.6	45	45
	R-70	60	100	20	4.9	9.2	45	45
	R-70	90	120	20	7.3	9.2	45	45
	R-70	200	230	20	15.7	9.2	45	45
FIS A M 12	5.8	70	100	40	6.8	12.0	55	55
	5.8	110	140	40	10.7	12.0	55	55
	5.8	240	270	40	20.5	12.0	55	55
	R-70	70	100	40	6.8	13.7	55	55
	R-70	110	140	40	10.7	13.7	55	55
	R-70	240	270	40	22.5	13.7	55	55
FIS A M 16	5.8	80	120	60	10.4	22.3	65	65
	5.8	125	170	60	16.2	22.3	65	65
	5.8	320	360	60	37.6	22.3	65	65
	R-70	80	120	60	10.4	24.9	65	65
	R-70	125	170	60	16.2	25.2	65	65
	R-70	320	360	60	41.5	25.2	65	65
FIS A M 20	5.8	90	140	120	13.5	32.3	85	85
	5.8	170	220	120	25.4	34.9	85	85
	5.8	400	450	120	58.6	34.9	85	85
	R-70	90	140	120	13.5	32.3	85	85
	R-70	170	220	120	25.4	39.4	85	85
	R-70	400	450	120	59.8	39.4	85	85
FIS A M 24	5.8	96	160	150	17.2	41.4	105	105
	5.8	210	270	150	37.7	50.9	105	105
	5.8	480	540	150	84.3	50.9	105	105
	R-70	96	160	150	17.2	41.4	105	105
	R-70	210	270	150	37.7	56.8	105	105
	R-70	480	540	150	86.2	56.8	105	105

¹⁾ Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$. Accurate data see ETA.
²⁾ The specified loads are valid for anchorages in dry and damp concrete. For temperatures in the anchoring substrate up to 50 °C (resp. short term up to 80 °C). Drill hole cleaning as per specification in the ETA. The factor ψ_{sus} for sustained load was taken into account with 1.0.
³⁾ Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).
⁴⁾ In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.

Epoxy mortar FIS EB II

The Epoxy mortar for standard applications in concrete.

2



Post-installed rebar connections



Steel beams

Applications

- Heavy steel constructions
- Consoles
- Silo installations
- Tall shelving
- Post-installed rebar connections

Advantages

- The injection mortar FIS EB II has ETA assessments for anchorings in cracked concrete and for post-installed rebar connections.
- FIS EB II is the reliable system for fixing heavy loads indoors and outdoors.
- Due to the variable anchoring depths, the epoxy resin mortar is very versatile.
- The long processing time of FIS EB II is particularly suitable for applications in large and deep drillholes.

Certificates



ETA-21/0469, for cracked concrete
ETA-21/0470, for post-installed rebar connections



Building materials

Approved for anchorings in:
· Concrete C20/25 to C50/60, cracked and non-cracked

Functioning

- The epoxy mortar FIS EB II in combination with the threaded rod FIS A and FTR is suitable for pre-positioned and push-through installation.
- Resin and hardener are stored in two separate chambers and are not mixed and activated until extrusion through the static mixer.
- The mortar is injected bubble-free from the drill hole base.
- The mortar bonds the entire surface of the threaded rod with the drill hole wall and seals off the drill hole.
- The threaded rod is set manually by slightly rotating it until it reached the drill hole base.
- During push-through installation, the annular gap between the threaded rod and the attachment is filled with FIS EB II.

For use with

FTR 15



Dispenser page 29

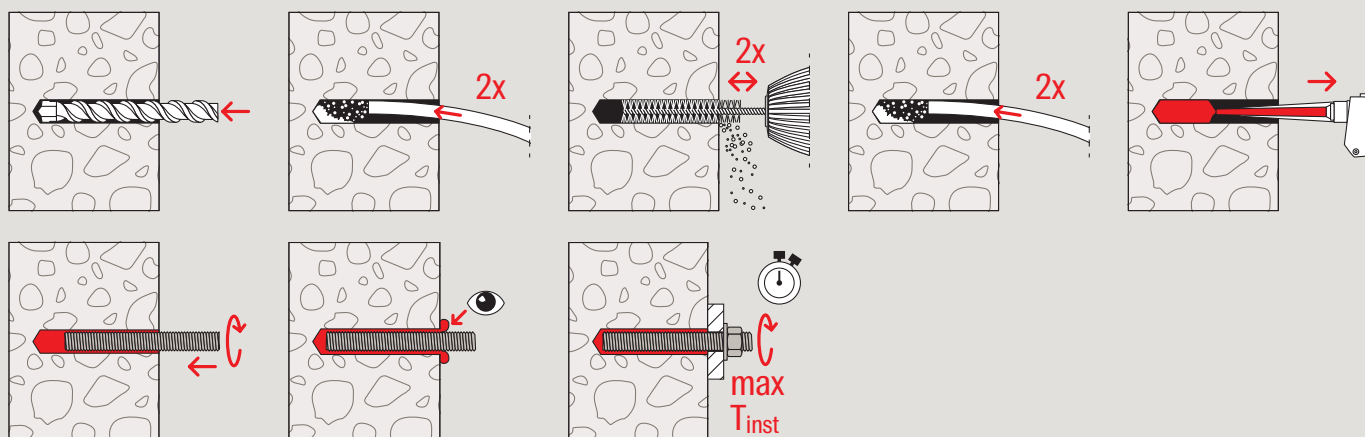


Accessories page

33






Installation - Pre-Positioned & Push through in concrete with FIS EB II and FTR



2

Epoxy mortar FIS EB II

Epoxy mortar FIS EB II							
							
FIS EB II 390 S	FIS MR Plus	Applicator gun FIS AM					
Item	Item no.	Ap- pro- val ETA	Languages on the cartridge	Scale unit	Contents [ml]	Contents	Sales unit [pcs]
FIS EB II 390 S	568873		EN, ES, PT	190	390	1 cartridges 390 ml, 2 x FIS MR Plus	6
FIS MR Plus	545853	-	-	-	-	10 static mixer FIS MR Plus	10
FIS AM	58000	-	-	-	-	1 applicator gun	1

Processing and curing times

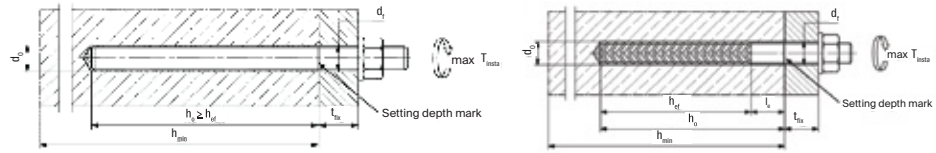
FIS EB II Temperatures at anchoring base [°C]	Maximum processing time t_{work} [min.]	Minimum curing time t_{cure} [hrs.]
+5 - +10	180	96
> +10 - +15	90	60
> +15 - +20	60	36
> +20 - +30	30	24
> +30 - +40	15	12

*The above times apply from the moment of contact between resin and hardener in the static mixer.

*For installation, the cartridge temperature must be at least +5° C. For longer installation times, i.e. when interruptions occur in work, the mixer should be replaced.

*In wet concrete or flooded holes, the curing time must be doubled.

Loads



Injection system FIS EB II with threaded rod FIS A resp. FTR

Permissible loads of a single anchor¹⁾²⁾ in normal concrete of strength class C20/25.

For the design the complete current assessment ETA-21/0469 of 09.12.2021 has to be considered.

Type	Material / surface ³⁾	Effective anchorage depth	Minimum member thickness	Maximum installation torque	Cracked concrete				Non-cracked concrete			
					Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads	$N_{perm}^{4)}$ [kN]	$V_{perm}^{4)}$ [kN]	$s_{min}^{4)}$ [mm]	$c_{min}^{4)}$ [mm]	Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads	$N_{perm}^{4)}$ [kN]	$V_{perm}^{4)}$ [kN]
FIS A M 8	5.8	60	100	10	3.6	6.3	40	40	5.4	6.3	40	40
	5.8	80	110	10	4.8	6.3	40	40	7.2	6.3	40	40
	5.8	160	190	10	9.0	6.3	40	40	9.0	6.3	40	40
	R-70	60	100	10	3.6	6.0	40	40	5.4	6.0	40	40
	R-70	80	110	10	4.8	6.0	40	40	7.2	6.0	40	40
	R-70	160	190	10	9.6	6.0	40	40	9.9	6.0	40	40
FIS A M 10	5.8	60	100	20	4.5	9.7	45	45	6.7	9.7	45	45
	5.8	90	120	20	6.7	9.7	45	45	10.1	9.7	45	45
	5.8	200	230	20	13.8	9.7	45	45	13.8	9.7	45	45
	R-70	60	100	20	4.5	9.2	45	45	6.7	9.2	45	45
	R-70	90	120	20	6.7	9.2	45	45	10.1	9.2	45	45
	R-70	200	230	20	15.0	9.2	45	45	15.7	9.2	45	45
FIS A M 12	5.8	70	100	40	6.3	14.3	55	55	9.4	14.3	55	55
	5.8	110	140	40	9.9	14.3	55	55	14.8	14.3	55	55
	5.8	240	270	40	20.5	14.3	55	55	20.5	14.3	55	55
	R-70	70	100	40	6.3	13.7	55	55	9.4	13.7	55	55
	R-70	110	140	40	9.9	13.7	55	55	14.8	13.7	55	55
	R-70	240	270	40	21.5	13.7	55	55	22.5	13.7	55	55
FIS A M 16	5.8	80	120	60	8.8	21.1	65	65	14.0	26.9	65	65
	5.8	125	170	60	13.7	26.9	65	65	22.4	26.9	65	65
	5.8	320	360	60	35.1	26.9	65	65	37.6	26.9	65	65
	R-70	80	120	60	8.8	21.1	65	65	14.0	25.2	65	65
	R-70	125	170	60	13.7	25.2	65	65	22.4	25.2	65	65
	R-70	320	360	60	35.1	25.2	65	65	42.0	25.2	65	65
FIS A M 20	5.8	90	140	120	11.7	28.0	85	85	16.7	40.0	85	85
	5.8	170	220	120	23.3	42.3	85	85	38.1	42.3	85	85
	5.8	400	450	120	54.9	42.3	85	85	58.6	42.3	85	85
	R-70	90	140	120	11.7	28.0	85	85	16.7	39.4	85	85
	R-70	170	220	120	23.3	39.4	85	85	38.1	39.4	85	85
	R-70	400	450	120	54.9	39.4	85	85	65.7	39.4	85	85
FIS A M 24	5.8	96	160	150	12.9	30.8	105	105	18.4	44.1	105	105
	5.8	210	270	150	34.6	60.6	105	105	53.4	60.6	105	105
	5.8	480	540	150	79.0	60.6	105	105	84.3	60.6	105	105
	R-70	96	160	150	12.9	30.8	105	105	18.4	44.1	105	105
	R-70	210	270	150	34.6	56.8	105	105	53.4	56.8	105	105
	R-70	480	540	150	79.0	56.8	105	105	94.3	56.8	105	105
FIS A M 30	5.8	120	190	300	18.0	43.1	140	140	25.7	61.6	140	140
	5.8	280	350	300	52.4	96.0	140	140	78.5	96.0	140	140
	5.8	600	670	300	112.2	96.0	140	140	133.8	96.0	140	140
	R-70	120	190	300	18.0	43.1	140	140	25.7	61.6	140	140
	R-70	280	350	300	52.4	90.2	140	140	78.5	90.2	140	140
	R-70	600	670	300	112.2	90.2	140	140	150.1	90.2	140	140

¹⁾ Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$. Accurate data see ETA.

²⁾ The specified loads are valid for anchorages in dry and damp concrete. For temperatures in the anchoring substrate up to 50 °C (resp. short term up to 72 °C). Higher loads are possible at lower temperatures. Drill hole cleaning as per specification in the ETA. The factor Ψ_{reg} for sustained load was taken into account with 1.0.

³⁾ Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).

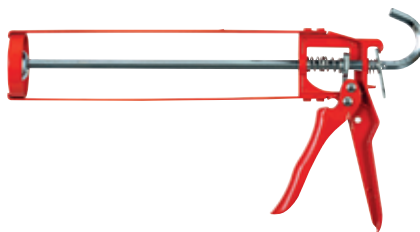
⁴⁾ In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.

Dispenser

FIS AM (58000)



KP M1 (53115)



Applications

- Shuttle cartridges with 360 and 390 ml content
- Cartridges with 150 ml content
- Multibond cartridges with 300 ml content
- Standard silicone cartridges

Advantages







- The robust design can withstand the high requirements of the job site and thus offers a long life.
- The infinitely variable feed allows the exact dosing and thus ensures easy handling.

Applications

- Cartridges with 150 ml content
- Multibond cartridges with 300 ml content
- Standard silicone cartridges

Advantages

- The handy, robust solid metal construction for standard cartridges up to 310 ml bears up against requirements on the construction site and, as such, is also suitable for professional use.
- The continuous in-feed allows for a precise dosage, making it easy to use.
- The slim shape of the device allows for an exact application, even in difficult to reach spots, thus offering a high level of flexibility

	 FIS ... 150 T	 FIS ... 300 T	 FIS ... 360 S	 FIS ... 390 S
Mortar Cartridges				
 FIS AM (58000)	•	•	•	•
 KP M1 (53115)	•	•	—	—

Injection anchor sleeves

FIS H K



FIS H L



FIS H N



2

Advantages

- The grating structure of the FIS H K anchor sleeve is adapted for the injection mortars FIS V Plus, FIS V, FIS VL, FIS GREEN, FIS P Plus and FIS P, and ensures sparing mortar use with the best interlock.
- The centring blades perfectly align the anchor in the anchor sleeve, and allow for use with various threaded rod diameters.
- The barbed hooks secure the anchor sleeve in the drill hole and allow for a trouble-free overhead installation.
- The geometry of the anchor sleeves allows for the bridging of non-bearing layers for a simple and convenient installation.

Functioning

- The system can be used with any of the following injection mortars: FIS V Plus, FIS VW Plus High Speed, FIS VS Plus Low Speed, [... FIS V], FIS VL, FIS GREEN or FIS P Plus. FIS P can be used but does not have approvals.
- The system is suitable for pre-positioned installation when combined with injection anchor sleeves and threaded rods FIS A or internal threaded anchors FIS E.
- The anchor sleeve is placed in the drill hole, and filled with injection mortar from the anchor sleeve base.
- Turning in the anchor causes the mortar to be pushed through the anchor sleeve's grating structure, so that it fits the base material perfectly. The load is borne by the interlock.

Advantages

- The metal anchor sleeve can be cut to the required length and thus allows for a range of usable lengths with just one produce, providing flexibility and cost-effectiveness.
- The grating structure of the anchor sleeve allows for uniform distribution of mortar in the drill hole and thus for secure hold.

Functioning

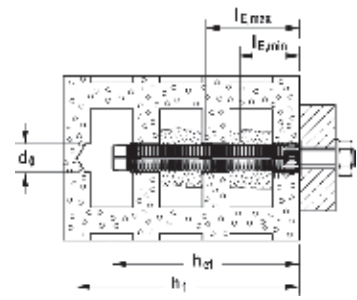
- The anchor sleeve is at first cut to the required length.
- The anchor sleeve is placed in the drill hole, and filled with injection mortar from the anchor sleeve base.
- Turning in the anchor causes the mortar to be pushed through the anchor sleeve's grating structure, so that it fits the base material perfectly.
- The load is borne by the interlock.

Advantage

- The net structure of the anchor sleeve allows for uniform distribution of mortar in the drill hole and thus for secure hold.

Functioning

- The anchor sleeve is placed in the drill hole, and filled with injection mortar from the anchor sleeve base.
- Turning in the anchor causes the mortar to be pushed through the anchor sleeve's grating structure, so that it fits the base material perfectly.
- The load is borne by the interlock.



Technical data

Injection anchor sleeves FIS H K



FIS H K

Item	Item No.	Approval ETA	Drill hole diameter d_0 [mm]	Drill hole depth acc. ETA [mm]	Effect. anchorage depth h_{ef} [mm]	Match	Fill quantity per sleeve [scale units]	Sales unit [pcs]
FIS H 12 x 50 K	041900	●	12	55	50	FIS A M6-M8	5	50
FIS H 12 x 85 K	041901	●	12	90	85	FIS A M6-M8	10	50
FIS H 16 x 85 K	041902	●	16	90	85	FIS A M8-M10, FIS E M6-M8	12	50
FIS H 16 x 130 K	041903	●	16	135	110	FIS A M8-M10	15	20
FIS H 20 x 85 K	041904	●	20	90	85	FIS A M12-M16, FIS E M10-M12	15	20
FIS H 20 x 130 K	046703	●	20	135	110	FIS A M12-M16	25	20
FIS H 20 x 200 K	046704	●	20	205	180	FIS A M12-M16	40	20

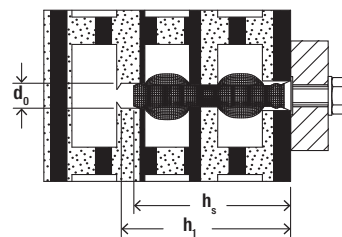
Technical data

Injection anchor sleeves FIS H L



FIS H L

Item	Item No.	Drill hole diameter d_0 [mm]	Total length l [mm]	Match	Fill quantity per 10 cm	Sales unit [pcs]
FIS H 12 x 1000 L	050598	12	1000	Ø6/M6 - Ø8/M8	12	10
FIS H 16 x 1000 L	050599	16	1000	Ø8/M8 - Ø10/M10	14	10
FIS H 22 x 1000 L	045301	22	1000	Ø12/M12 - Ø16/M16	20	6
FIS H 30 x 1000 L	000645	30	1000	Ø16/M16 - Ø22/M22	26	4



Technical data

2

Injection anchor sleeve with net FIS H N



FIS H N

Item	Item No.	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Min. anchorage depth anchor h_v [mm]	Fill quantity per sleeve [scale units]	Match	Sales unit [pcs]
FIS H 16 x 85 N	050470	16	95	85	15	Ø8/M8	20
FIS H 18 x 85 N	050472	18	95	85	17	Ø10/M10	20
FIS H 20 x 85 N	050474	20	95	90	18	Ø12/M12	20

Accessories

Accessories for drill hole cleaning

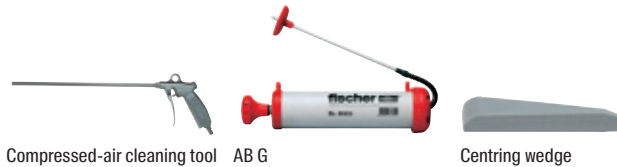
Cleaning brushes



Item	Item No.	Length [mm]	Length [mm]	Brush diameter [mm]	For drill diameter [mm]	Sales unit [pcs]
BS ø 8	078177	120	50	9	8	1
BS ø 10	078178	120	50	11	10	1
BS ø 12	078179	150	80	13	12	1
BS ø 14	078180	250	80	16	14	1
BS ø 16/18	078181	250	80	20	16/18	1
BS ø 20/22	052277	180	80	25	20/22	1
BS ø 24	078182	300	100	26	24	1
BS ø 25	097806	300	100	27	25	1
BS ø 28	078183	350	100	30	28	1
BS ø 30/32/35	078184	400	100	40	30/32/35	1
FIS brush extension	508791	410	—	—	—	1
Compressed air nozzle D16-D19	511957	—	—	—	—	2
Compressed air nozzle D20-D25	511958	—	—	—	—	2

Accessories

Drill hole cleaning (air)



Item	Item No.	Contents	Total length [mm]	Sales unit [pcs]
Compressed-air cleaning tool	093286	—	—	1
Blow-out pump AB G	089300	—	370	1
Centring wedge	093076	10 wedges for overhead installation, from M16	—	1

Accessories

Adapters and setting tools



Item	Item No.	Match	Sales unit [pcs]
RA-SDS	062420	Adapter suitable fits set screw	1
SK SW 8 1/2	001536	Adapter suitable fits threaded rods M8 - M22	1
SDS plus 1/2	001537	Adapter suitable fits threaded rods M8 - M16	1
SDS max 1/2	001538	Adapter suitable fits threaded rods M16 - M20	1
SDS max 3/4	001539	Adapter suitable fits threaded rods M20 - M30	1

Technical data

Conical drill bit



PBB

PBZ

Item	Item No.	Approval	Match	Contents	Sales unit [pcs]
		ETA			
Cone drill PBB	090634	●	M8 - M12; FIS E	1x cone drill PBB	1
Centring sleeve PBZ	090671	●	M8 - M12; FIS E	10x centring sleeve PBZ, 5x injection adapter	10

Fill & Fix injection fixing

Liquid plugs and repair compounds for serious cases



Repairing damaged drill holes



Repairing damaged hinges

2

Applications

- Repairing cracked or over-sized drill holes
- Repairing broken furniture hinges etc.
- Fixing lightweight objects in difficult or damaged building materials (old buildings)
- Fixing lightweight objects in internal and UV-protected external areas

Advantages

- The Fill & Fix injection fixing works whatever the drill hole size and building material. As a result, a number of applications can be completed with just one product.
- Wood screws can be screwed directly into the hardened injection fixing. This allows for a fast and simple installation.
- Due to the special formulation, the screw

can be screwed into the injection fixing and removed. Thus, components can be reattached to the same point.

- Fill & Fix can be sanded and painted, and is suitable for filling drill holes that are no longer needed prior to painting.

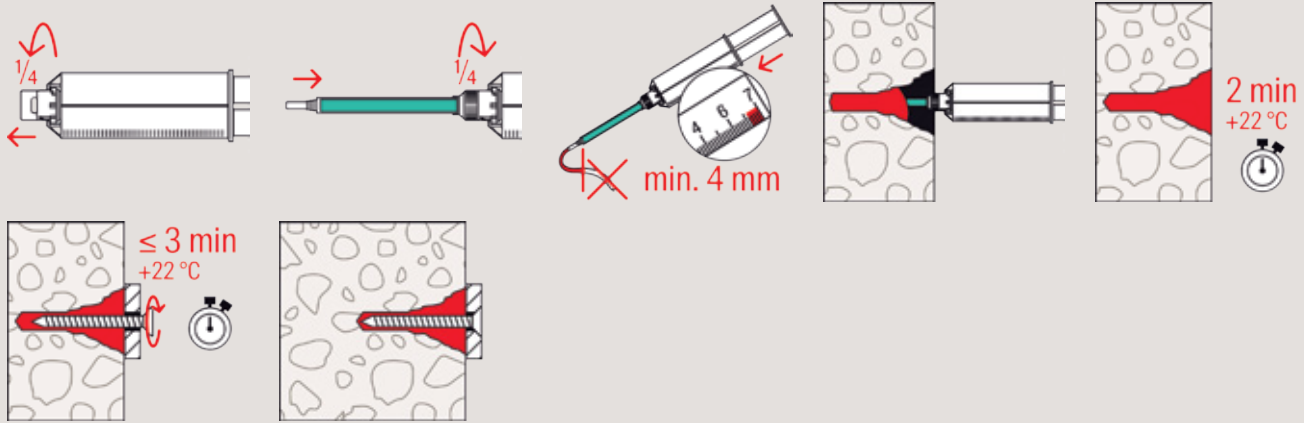
Building materials

- Concrete
- Vertically perforated brick
- Hollow blocks made from lightweight concrete
- Cavity floor slabs made from bricks and concrete
- Wooden materials
- Perforated sand-lime brick
- Solid sand-lime brick
- Natural stone with dense structure
- Panel building materials
- Aerated concrete
- Solid panel made from gypsum
- Solid brick made from lightweight concrete
- Solid brick

Functioning

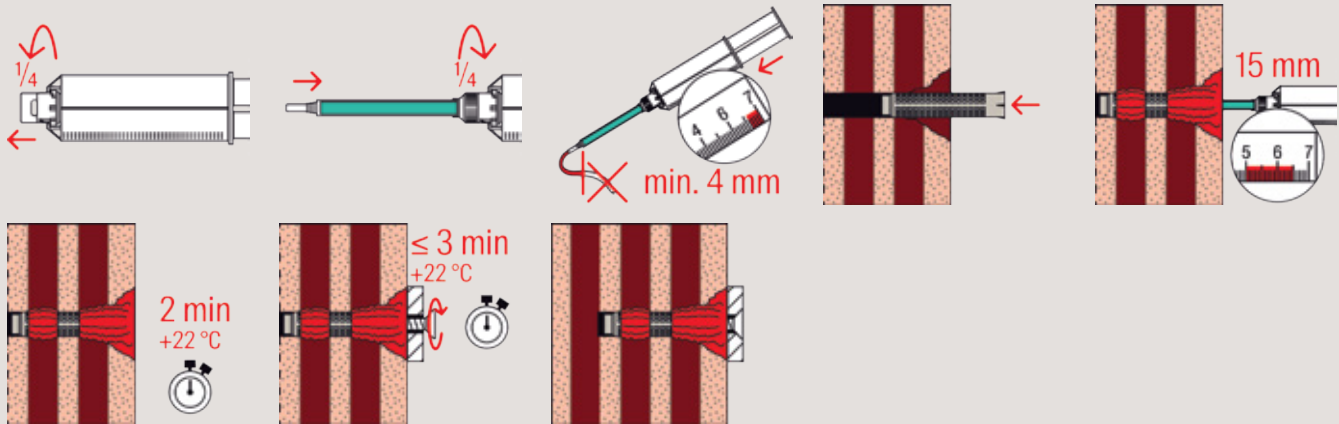
- Fill & Fix is a 2-component, solvent-free injection compound based on polyurethane. It is applied into the drill hole, where it foams lightly and sets quickly.
- The increase in volume during the setting process guarantees a secure hold, even in dilapidated or difficult building materials.
- After approx. 2 minutes, screws, hooks, eye screws etc. with a diameter of up to 6 mm that are normally used in wood can be screwed into and removed from the set material without pre-drilling.
- Use the perforated sleeves (included) for hollow and board building materials.

Installation Pre-positioned in solid building materials



2

Installation Pre-positioned in hollow and panel building material



Technical data

fill & fix injection fixing



Fill & Fix

Item	Item No.	Contents	Languages on the cartridge	Sales unit [pcs]
Fill & Fix K (D)	051097 ¹⁾	1 cartridge 25 ml, 2 static mixer, 4 anchor sleeves, 2 extension tubes	DE	4

1) Dangerous goods - no express shipping possible.

Loads

Fill & Fix					
Recommended loads ^{1) 2)} for a single anchor. The given loads are valid for chipboard screws with the specified diameters.					
Type			Fill & Fix		
Diameter of chipboard screw	Ø	[mm]	4.0	5.0	6.0
Nominal drill diameter	d ₀	[mm]	10	10	10
Anchorage depth	h _{ef} ≥	[mm]	45	45	45
Drill hole depth	h ₁ ≥	[mm]	50	50	50
Anchorage in solid substrates					
Recommended load in concrete	≥ C12/15	[kN]	0.50	0.60	0.70
Recommended load in sand-lime bricks	≥ KS 20, ≥ NF	[kN]	0.50	0.60	0.70
Anchorage in perforated bricks/hollow blocks using the perforated sleeve					
Recommended load in vertically perforated bricks	≥ HLz 12, ρ ≥ 0.9 kg/dm ³ , ≥ 16DF	[kN]	0.20	0.25	0.30
Recommended load in perforated sand-lime bricks	≥ KSL 12, ρ ≥ 1.4 kg/dm ³ , ≥ 5DF	[kN]	0.20	0.25	0.30
Recommended load in lightweight concrete hollow blocks	≥ Hbl 4, 2K, ≥ 8DF	[kN]	0.20	0.25	0.30
Anchorage in aerated concrete					
Recommended load in aerated concrete	≥ PB2, PP2	[kN]	0.10	0.15	0.20
Anchorage in board materials using the perforated sleeve					
Recommended load in gypsum plasterboard	12.5 mm	[kN]	0.12	0.12	0.12
Recommended load in gypsum plasterboard	25 mm (= 2 × 12.5 mm)	[kN]	0.20	0.20	0.20
Recommended load in gypsum fibreboard	12.5 mm	[kN]	0.21	0.21	0.21





¹⁾ Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.



3

High performance steel anchors

Hammerset anchor EA-N	40	
Rock Fixing Anchor GM	43	
Wedge Anchor FWA	45	
Bolt anchor FXA	48	

Hammerset anchor EA-N

The cost-efficient hammerset anchor for an easy installation



Height adjustable pipe installation



Pipelines

Applications

- Pipeline routes
- Cable trays
- Consoles
- Sprinkle System
- Air Conditioner devices

Advantages

- The hammerset anchor with internal thread is suitable for pre-positioned installation.
- The EA-N fits for all standard screws with

metric/inch – thread.

- The available internal thread diameter from 6 mm to 20 mm provides flexibility in the application.

Building materials

- Concrete C12/15 to C50/60, non-cracked

Versions

- Zinc-plated steel

Functioning

- Put the hammerset anchor in the drill hole and get it flush to the surface by hammering in.
- With the hammerset tool EA-ST the capsule will spread due to hammering in the internal bolt and tensed up against the drill hole wall.
- The hammerset tools must be set up on the edge of the anchor for a correct expansion.

For use with:

BS Brush

33

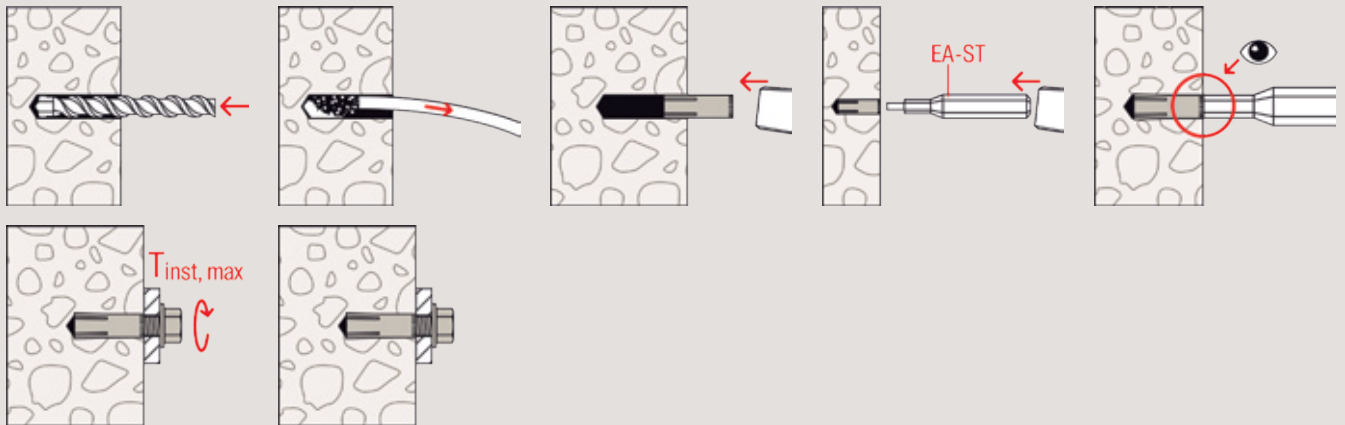


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Installation EA-N Pre-Positioned



Technical data

Hammerset anchor EA N (metric)



EA-N Metric

Item	Item No.		Min. drill hole depth for pre-positioned installation h_1 [mm]	Anchor length l [mm]	Internal thread A1	Min. bolt penetration $l_{E,min}$ [mm]	Sales unit [pcs]
EA M 6 x 25 N gvz	535962	8	25	25	M 6	6	100
EA M 8 x 30 N gvz	535963	10	30	30	M 8	8	100
EA M10 x 40 N gvz	535964	12	40	40	M 10	10	50
EA M 12 x 50 N gvz	535965	15	50	50	M 12	12	50
EA M 16 x 65 N gvz	535966	20	65	65	M 16	16	25
EA M 20 x 80 N gvz	535967	25	80	80	M 20	20	25

Technical data

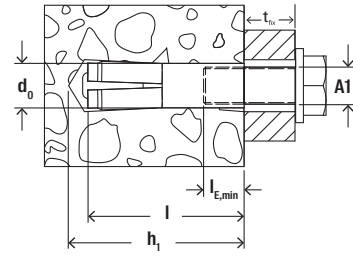
Setting tool EA-ST



EA-ST

Item	Item No.	Match	Sales unit [pcs]
EA-ST 6	504573	1) EA N M6	1
EA-ST 8	504576	1) EA N M8	1
EA-ST 10	504584	1) EA N M10	1
EA-ST 12	504585	1) EA N M12	1
EA-ST 16	504586	1) EA N M16	1
EA-ST 20	504587	1) EA N M20	1

(1) Without embossing tool



Loads

Hammer-set anchor EA-N

Recommended loads¹⁾ of a single anchor in normal concrete of strength class C20/25.

Type	Material/ surface ²⁾	Screw material	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Maximum installation torque $T_{inst,max}$ [Nm]	Non-cracked concrete		
						Recommended tension load (N_{rec}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads		
						N_{rec} [kN]	s_{min} ²⁾ [mm]	c_{min} ²⁾ [mm]
EA M6 x 25 N ³⁾	gvz	≥ 4.6	25	100	4	2.0	65	115
EA M8 x 30 N ³⁾	gvz	≥ 4.6	30	100	8	2.5	95	140
EA M10 x 40 N	gvz	≥ 4.6	40	100	15	4.5	150	180
EA M12 x 50 N	gvz	≥ 4.6	50	120	35	6.0	145	200
EA M16 x 65 N	gvz	≥ 4.6	65	160	60	11.5	180	240
EA M20 x 80 N	gvz	≥ 4.6	80	200	120	16.0	190	280

¹⁾ Required safety factors are considered.

²⁾ Minimum possible axial spacings resp. edge distance while reducing the recommended load.

³⁾ Only suitable for statically indeterminate systems.

Rock Fixing Anchor GM

Cast Iron Anchor for Pre-Positoned Installation



Beam Fixing



Base Plates

3

Applications

- Beam fixing
- Base Plates
- Railings
- Stay wires
- Steel constructions

Advantages

- The cast iron shields are shaped specifically to provide maximum grip even on rock and natural stone.
- The four part expansion sleeve allows to achieve high loads and to reduce the influence of the drill hole quality.
- The particularly strong sleeve allows for secure fixings even on low quality concrete, solid masonry and compact materials.
- The harmonic steel spring maximizes expansion and prevents anchor rotation into the drill hole.

Building materials

- Concrete C20/25, non-cracked
- Rock
- Natural Stone with dense structure
- Solid Block

For use with:

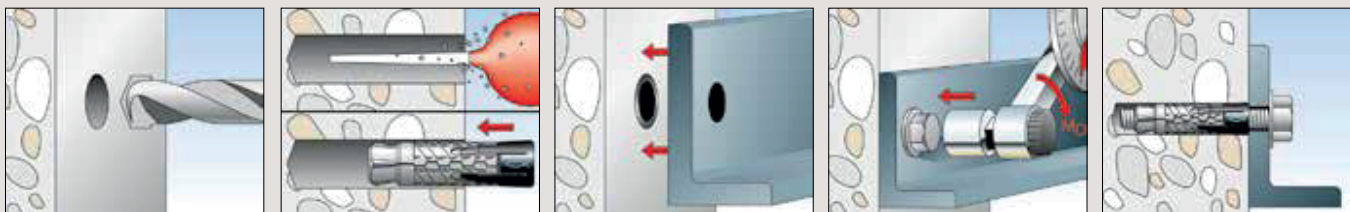
BS Brush 33



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Installation Pre-positioned GM



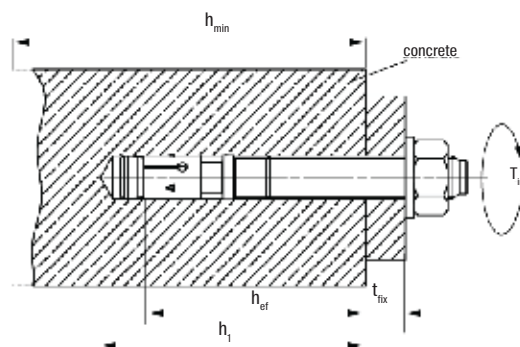
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Technical data

Rock anchor GM



Item	Art No	Drill hole diameter	Min. drill hole depth	Anchor length	Min. bolt penetration	Min. bolt penetration	Qty. per box
		d_0 [mm]	h_1 [mm]	l [mm]	m [mm]	$l_{E,min}$ [Nm]	
GM 6	500901	12	60	47	M6	47	50
GM 8	500902	15	70	50	M8	50	50
GM 10	500903	18	80	60	M10	60	25
GM 12	500904	22	100	75	M12	75	20
GM 16	500905	30	130	102	M16	102	10
GM 20	500906	36	170	135	M20	135	5



Loads

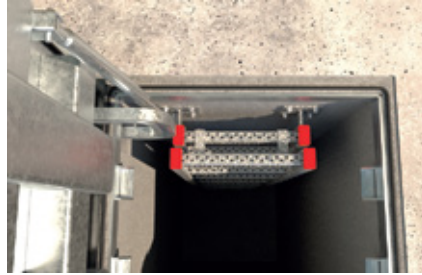
Rock anchor GM

Item		FWB M6 S	FWB M8 S	FWB M10 S	FWB M12 S	FWB M16 S	FWB M20 S
		Non-cracked concrete ²⁾					
Effective anchorage depth	h_{ef} (mm)	47	50	60	75	102	135
Min. member thickness	h_{min} (mm)	100	100	100	125	175	230
Installation torque	T_{inst} (Nm)	10	25	45	75	120	230
Recommended load ¹⁾	F_{rec} (kN)	4.0	4.7	5.9	8.4	13.4	20.7
Min. spacing	s_{min} (mm)	80	80	80	125	170	230
Min. edge distance	c_{min} (mm)	50	50	50	80	105	140

Rock fixing anchor GM - Highest recommended loads for single anchor¹⁾ in non-cracked normal concrete (concrete compression zone) of strength C/20/25²⁾

Bolt anchor FWA

The cost-effective fixation without approval - for use in non-cracked concrete



Stormwater overflow tank manholes



Column bases

3

Applications

- Steelwork constructions
- Guard rails
- Consoles
- Ladders
- Cable trays
- Machines
- Staircases
- Gates
- Façades

Advantages

- Fewer fixing points and smaller anchor plates due to the high load capacity of standard anchorage depth.
- High flexibility and time savings thanks

- reduced anchorage depth.
- Time saving due to push-through installation and reduced drill hole depth.
- Extensive assortment offers the use of imperial and metric dimensions.

Building materials

- Concrete C20/25, non-cracked

Versions

- Zinc-plated steel
- Sherardized with A2 clip

Functioning

- The FWA is offered in zinc-plated steel for indoor use and sherardized steel for temporary outdoor use.
- The bolt anchor can be used with two anchorage depths.
- During the installation, the cone is pulled into the expansion sleeve. Thereby the sleeve expands against the drill hole wall.
- The FWA is suitable for prepositioned and push through installation, also suitable for stand off installation under certain conditions.

For use with:

BS Brush

33

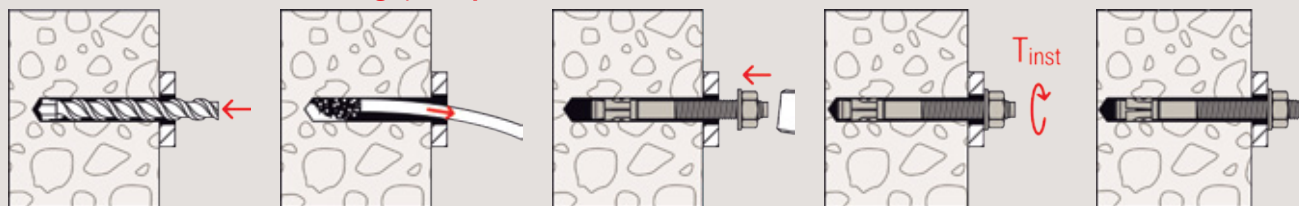


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Installation FWA - Push through, Pre-positional & Standoff installation



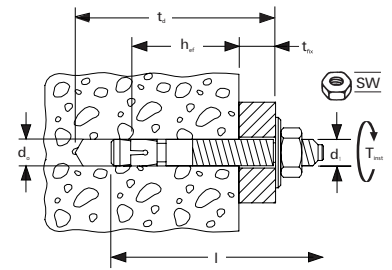
3 Technical data

Bolt anchor FWA (metric)



FWA (metric)

Item	Zinc-plated steel	Sheradised steel with A2 clip	Drill hole diameter	Min. drill hole depth for through fixings	Anchor length	Max. fixture thickness	Thread	Width across nut	Sales unit
	Item No. gvz	Item No. hdg	d_0 [mm]	h_2 [mm]	l [mm]	t_{fix} [mm]	$\emptyset \times$ length [mm]	SW [mm]	[pcs]
FWA 6 x 45	045536	—	6	40	40	3	M 6	10	100
FWA 6 x 55	045582	—	6	55	55	15	M 6	10	100
FWA 6 x 70	045598	—	6	70	70	30	M 6	10	100
FWA 8 x 50	045644	—	8	50	50	5	M 6	13	50
FWA 8 x 60	502893	—	8	60	60	15	M 8	13	50
FWA 8 x 65	045788	502922	8	65	65	20	M 8	13	50
FWA 8 x 80	045789	502923	8	80	80	35	M 8	13	50
FWA 8 x 95	045790	502924	8	95	95	50	M 8	13	50
FWA 8 x 120	045791	502925	8	120	120	75	M 8	13	50
FWA 10 x 65	045645	—	10	65	65	10	M 10	17	50
FWA 10 x 80	045792	502926	10	80	80	25	M 10	17	50
FWA 10 x 95	045793	502927	10	95	95	40	M 10	17	50
FWA 10 x 115	045794	502928	10	115	115	60	M 10	17	25
FWA 10 x 130	045646	502929	10	130	130	75	M 10	17	25
FWA 10 x 140	503367	—	10	140	140	85	M 10	17	25
FWA 10 x 160	503368	—	10	160	160	105	M 10	17	25
FWA 10 x 180	503369	—	10	180	180	115	M 10	17	25
FWA 10 x 200	503370	—	10	200	200	135	M 10	17	25
FWA 12 x 80	045647	502972	12	80	80	10	M 12	19	25
FWA 12 x 100	045648	502973	12	100	100	30	M 12	19	25
FWA 12 x 120	045795	502974	12	120	120	50	M 12	19	25
FWA 12 x 150	045796	502975	12	150	150	80	M 12	19	25
FWA 12 x 160	503371	—	12	160	160	90	M 12	19	25
FWA 12 x 180	503372	—	12	180	180	110	M 12	19	25
FWA 12 x 200	503373	—	12	200	200	130	M 12	19	25
FWA 12 x 220	503374	—	12	220	220	150	M 12	19	25
FWA 12 x 240	503377	—	12	240	240	170	M 12	19	25
FWA 16 x 105	045649	502976	16	105	105	15	M 16	24	20
FWA 16 x 125	—	502977	16	125	125	35	M 16	24	20
FWA 16 x 125	502921	—	16	115	125	35	M 16	24	20
FWA 16 x 140	045798	502978	16	140	140	50	M 16	24	10
FWA 16 x 180	045799	502979	16	180	180	90	M 16	24	10
FWA 16 x 200	503379	—	16	190	200	110	M 16	24	10
FWA 20 x 120	—	502872	20	120	120	—	M 20	30	—
FWA 20 x 160	045800	502980	20	160	160	40	M 20	30	10
FWA 20 x 200	503382	—	20	190	200	80	M 20	30	10
FWA 20 x 220	056133	—	20	210	220	100	M 20	30	10
FWA 20 x 240	503383	—	20	230	240	120	M 20	30	10
FWA 20 x 300	503387	—	20	—	—	—	—	—	—



Loads

Wedge Anchor FWA

Recommended loads of a single anchor¹⁾ in normal concrete of strength class C20/25.

Type	Material / surface ³⁾	Effective anchorage depth $h_{ef} \geq$ [mm]	Minimum member thickness h_{min} [mm]	Drill hole diameter d_0 [mm]	Drill hole diameter in fixture ²⁾ d_f [mm]	Installation torque T_{inst} [Nm]	Non-cracked concrete			
							Recommended tension (N_{rec}), shear loads (V_{rec}), minimum spacing (s_{min}) and edge distances (c_{min})	N_{rec} ³⁾ [kN]	V_{rec} ³⁾ [kN]	s_{min} ³⁾ [mm]
FWA 6	gvz	25	100	6	8	4	1.3	1.3	80	40
	gvz	30	100	6	8	4	2.1	1.7	100	50
FWA 8	gvz / shrd	25	100	8	10	10	1.4	1.4	80	40
	gvz / shrd	35	100	8	10	10	2.8	2.8	90	45
FWA 10	gvz / shrd	25	100	10	13	25	1.8	1.8	90	45
	gvz / shrd	35	100	10	13	25	2.8	2.8	120	60
	gvz / shrd	45	100	10	13	25	3.8	3.8	150	75
FWA 12	gvz / shrd	35	100	12	15	40	3.2	3.2	120	60
	gvz / shrd	45	100	12	15	40	4.4	4.4	150	75
	gvz / shrd	55	110	12	15	40	5.8	5.8	180	90
FWA 16	shrd	45	100	16	19	100	4.4	4.4	150	75
	gvz	50	100	16	19	100	4.4	4.4	150	75
	shrd	60	120	16	19	100	6.2	6.2	200	100
	gvz	65	130	16	19	100	6.2	6.2	200	100
	shrd	75	150	16	19	100	8.5	8.5	240	120
FWA 20	gvz	80	160	16	19	100	8.5	8.5	240	120
	shrd	70	150	20	23	200	8.0	-	210	105
	gvz / shrd	75	150	20	23	200	9.7	9.7	240	120
	gvz / shrd	95	190	20	23	200	13.5	13.5	300	150

¹⁾ The partial safety factors for material resistance as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$.

²⁾ For push-through installation.

³⁾ As recommended loads are given in the table, combinations of tensile and shear loads, bending moments and reduced edge and axial spacings (anchor groups) can not be carried out.

Bolt anchor FXA

Cost efficient fixing with ETA assessment for non-cracked concrete



Banisters



Steel girders

Applications

- Steel constructions
- Guard rails
- Consoles
- Ladders
- Cable trays
- Machines
- Staircases
- Gates
- Façades

Advantages

- The standard anchorage depth achieves the maximum loadbearing capacities so fewer fixing points and smaller anchor plates are required.
- With only a few hammer blows and

minimal torque slippage installation is a simple process.

- The drive-in pin protects the thread from damage, and ensures a faster installation and dismantling of the attachment.

Certificates



ETA-13/0772, for non-cracked concrete



INOX STAINLESS STEEL

Building materials

Approved for:

- Concrete C20/25 to C50/60, non-cracked

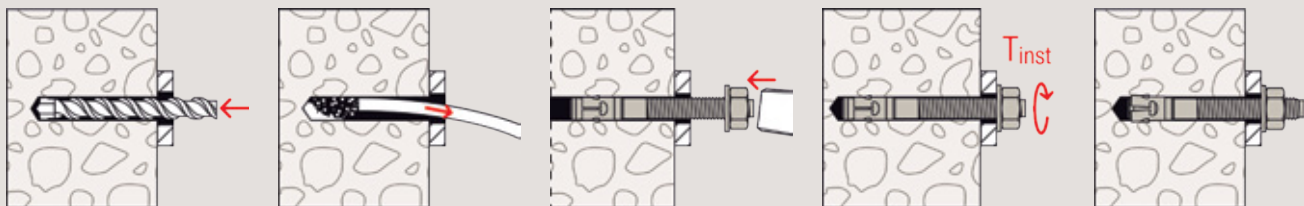
Versions

- Zinc-plated steel
- Stainless steel - duplex steel

Functioning

- The FXA is suitable for pre-positioned and push through installation, also suitable for stand off installation under certain conditions.
- Prior to installation, place the hexagon nut in the optimal position (the drive-in pin projects by approx. 3 mm out of the hexagon nut).
- When applying the torque, the cone bolt is pulled into the expansion clip and expands it against the drill hole wall.
- The head embossing offers a simple control of the anchoring.

Installation FXA - Pre-positioned, Push through & Standoff installation



For use with:

BS Brush

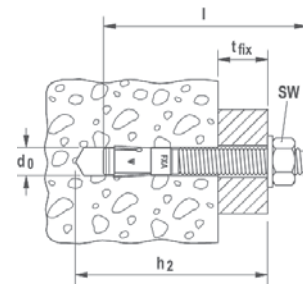
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Technical data

Bolt anchor FXA



FXA

Item	Zinc-plated steel	Stainless steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Anchor length	Width across nut	Sales unit
	Item No.	Item No.		d_0 [mm]	h_2 [mm]	l [mm]	SW [mm]	
	gvz	R	ETA					[pcs]
FXA 8/5 x 65	561410	—	●	8	61	66	13	50
FXA 8/10 x 70	561411	523270	●	8	66	71	13	50
FXA 8/30 x 90	561412	523271	●	8	86	91	13	50
FXA 8/50 x 110	561413	523272	●	8	106	111	13	50
FXA 10/10 x 85	561414	523273	●	10	78	86	17	50
FXA 10/20 x 95	561415	523274	●	10	88	95	17	50
FXA 10/30 x 105	561416	—	●	10	98	106	17	50
FXA 10/50 x 125	561417	523276	●	10	118	126	17	20
FXA 10/100 x 175	561418	—	●	10	168	176	17	20
FXA 12/10 x 104	561419	523277	●	12	95	106	19	20
FXA 12/20 x 114	561420	523278	●	12	105	116	19	20
FXA 12/30 x 124	561421	—	●	12	115	126	19	20
FXA 12/50 x 144	561422	523304	●	12	135	146	19	20
FXA 12/100 x 196	523142	—	●	12	185	196	19	20
FXA 16/25 x 143	561423	523305	●	16	129	145	24	10
FXA 16/50 x 170	523144	523306	●	16	154	170	24	10
FXA 16/100 x 220	523145	—	●	16	204	220	24	10

Loads

Bolt anchor FXA

Permissible loads of a single anchor¹⁾ in normal concrete of strength class C20/25.
For the design the complete assessment ETA-13/0772 of 14.07.2020 has to be considered.

Type	Material/surface ²⁾	Effective anchorage depth h_{ef} [mm]	Minimum member thickness h_{min} [mm]	Installation torque T_{inst} [Nm]	Non-cracked concrete			
					Permissible tension (N_{perm}) and shear loads (V_{perm}); minimum spacing (s_{min}) and edge distances (c_{min}) with reduced loads			
					$N_{perm}^{3)}$ [kN]	$V_{perm}^{3)}$ [kN]	$s_{min}^{3)}$ [mm]	$c_{min}^{3)}$ [mm]
FXA M8	gvz	40	100	15	4.8	5.9	40	45
	R	40	100	10	4.8	5.9	40	45
FXA M10	gvz	50	100	30	6.3	8.3	70	55
	R	50	100	20	6.3	8.3	70	55
FXA M12	gvz	65	120	50	9.9	14.3	70	70
	R	65	120	35	9.9	14.3	70	70
FXA M16	gvz	80	160	100	16.7	26.9	120	90
	R	80	160	80	16.7	26.9	120	90

¹⁾ Design according to EN 1992-4:2018 (for static resp. quasi-static loads). The partial safety factors for material resistance as regulated in the ETA as well as a partial safety factor for load actions of $\gamma_L = 1.4$ are considered. As a single anchor counts e.g. an anchor with a spacing $s \geq 3 \times h_{ef}$ and an edge distance $c \geq 1.5 \times h_{ef}$. Accurate data see ETA.


²⁾ Further steel grades, versions and technical data see ETA, e.g. for dry internal conditions, galvanised steel (gvz); for damp interiors and for outdoor use, stainless steel (R).

³⁾ In the case of combinations of tension and shear loads, bending moments with reduced or minimum spacing and edge distances (anchor groups), the design must be carried out in accordance with the provisions of the complete ETA and the provisions of the EN 1992-4:2018. We recommend using our anchor design software C-FIX.



4

Frame fixings / Stand-off installation

Hammerfix N	52	
Frame fixing SXR	56	
Metal frame fixing F-M	62	

Hammerfix N

The hammer-in plug for a simple, fast and economical installation



Timber substructures



Cable ducts

Applications

- Substructures made of wood and metal
- Wall connection or plaster profiles
- Slides
- Sheets
- Cable and pipe clips
- Perforated tapes

Advantages

- The rapid hammerset installation reduces the amount of time required and allows for an economic series installation.
- The integrated hammer-in stop prevents the plug from expanding prematurely (jamming), thus enabling a problem-free installation.
- Together with the cross-slot recess, the

thread of the nail screw allows the screw to be removed, thus allowing for subsequent dismantling.

- The wide range of diameters, usage lengths and head shapes provides the correct plug for every fixing.

Characteristics



INOX STAINLESS STEEL

Building materials

- Concrete
- Solid sand-lime brick
- Building brick
- Natural stone
- Solid brick made from lightweight concrete
- Aerated concrete
- Solid panel made from gypsum
- Vertically perforated brick
- Perforated sand-lime brick
- Hollow blocks made from lightweight concrete

Functioning

- The Hammerfix N is suitable for push-through installation.
- When hammered in, the nail screw causes the plug to expand in two directions, thus providing a secure anchoring in the building material.
- Countersunk head plugs are recommended for the installation of timber constructions; in the case of metal constructions, use plugs with cylindrical head, and use flat edge plugs for long holes.

Versions

- Zinc-plated steel
- Stainless steel A2

For use with:

BS Brush

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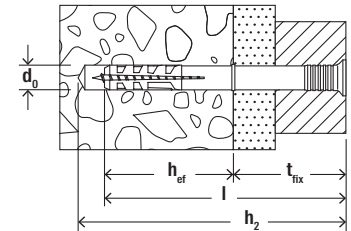
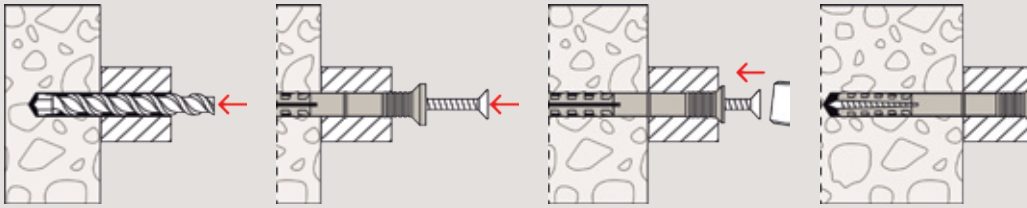


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Installation N - Push Through



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Technical data

Hammerfix N-S



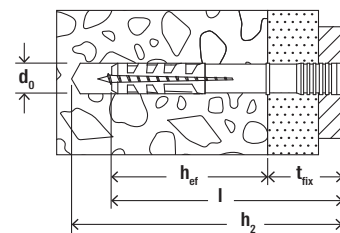
N-S with nail

N-S A2 with stainless steel
A2 nail

Item	Zinc-plated steel	Stainless steel A2	Drill hole diameter	Effect. anchorage depth	Anchor length	Min. drill hole depth for through fixings	Max. fixture thickness	Drive	Sales unit
	Item No.	Item No.	d_0 [mm]	h_{ef} [mm]	l [mm]	h_2 [mm]	t_{fix} [mm]		
N 5 x 30/5 S (100)	050395 ²⁾	050370	5	25	30	45	5	PZ2	100
N 5 x 40/15 S (100)	050351	—	5	25	40	55	15	PZ2	100
N 5 x 50/25 S (100)	050352	—	5	25	50	65	25	PZ2	100
N 6 x 40/10 S (50)	050354	050372	6	30	40	55	10	PZ2	50
N 6 x 40/10 S (100)	048788	—	6	30	40	55	10	PZ2	100
N 6 x 40/10 S (200)	513834 ²⁾	—	6	30	40	55	10	PZ2	200
N 6 x 60/30 S (50)	050355	050373	6	30	60	75	30	PZ2	50
N 6 x 60/30 S (100)	048789	—	6	30	60	75	30	PZ2	100
N 6 x 60/30 S (200)	513835 ²⁾	—	6	30	60	75	30	PZ2	200
N 6 x 80/50 S (50)	050353	—	6	30	80	95	50	PZ2	50
N 6 x 80/50 S (100)	048790	—	6	30	80	95	50	PZ2	100
N 6 x 80/50 S (200)	513836 ²⁾	—	6	30	80	95	50	PZ2	200
N 8 x 60/20 S (50)	050356	050374	8	40	60	75	20	PZ3	50
N 8 x 60/20 S (100)	048791	—	8	40	60	75	20	PZ3	100
N 8 x 80/40 S (50)	050358	050375	8	40	80	95	40	PZ3	50
N 8 x 80/40 S (100)	048792	—	8	40	80	95	40	PZ3	100
N 8 x 100/60 S (50)	050357	050376	8	40	100	115	60	PZ3	50
N 8 x 100/60 S (100)	048793	—	8	40	100	115	60	PZ3	100
N 8 x 120/80 S (50)	050359	—	8	40	120	135	80	PZ3	50
N 8 x 120/80 S (100)	048794	—	8	40	120	135	80	PZ3	100
N 10 x 100/50 S (50)	050346 ¹⁾	—	10	50	100	115	50	PZ3	50
N 10 x 135/85 S (50)	050347 ¹⁾	—	10	50	135	150	85	PZ3	50
N 10 x 160/110 S (50)	050348 ¹⁾	—	10	50	160	175	110	PZ3	50
N 10 x 230/180 S (50)	050335 ¹⁾	—	10	50	230	245	180	PZ3	50

1) not pre-assembled

2) also specially suitable for fischer pipe clips FC, see chapter electrical fixings.



Technical data

Hammerfix N-F



N-F with cylindrical head and nail

4

Item	Item No. gvz	Drill hole diameter	Effect. anchorage depth	Anchor length	Min. drill hole depth for through fixings	Max. fixture thickness	Drive	Sales unit
		d_0 [mm]	h_{ef} [mm]	l [mm]	h_2 [mm]	t_{fix} [mm]		[pcs]
N 5 x 25/1 F (100)	514872	5	25	25	40	1	PZ2	100
N 5 x 25/1 F (200)	514873	5	25	25	40	1	PZ2	200
N 5 x 30/5 F (100)	513736	5	25	30	45	5	PZ2	100
N 5 x 30/5 F (200)	513739	5	25	30	45	5	PZ2	200
N 5 x 40/15 F (100)	513737	5	25	40	55	15	PZ2	100
N 5 x 40/15 F (200)	513740	5	25	40	55	15	PZ2	200
N 5 x 50/25 F (100)	513738	5	25	50	65	25	PZ2	100
N 5 x 50/25 F (200)	513741	5	25	50	65	25	PZ2	200
N 6 x 35/5 F (100)	522948	6	30	35	40	5	PZ2	100
N 6 x 40/10 F (100)	513840	6	30	40	55	10	PZ2	100
N 6 x 40/10 F (200)	513843	6	30	40	55	10	PZ2	200
N 6 x 60/30 F (100)	513841	6	30	60	75	30	PZ2	100
N 6 x 60/30 F (200)	513844	6	30	60	75	30	PZ2	200
N 6 x 80/50 F (100)	513842	6	30	80	95	50	PZ2	100
N 6 x 80/50 F (200)	513845	6	30	80	95	50	PZ2	200
N 8 x 60/20 F (100)	513701	8	40	60	75	20	PZ3	100
N 8 x 80/40 F (100)	513702	8	40	80	95	40	PZ3	100
N 8 x 100/60 F (100)	513703	8	40	100	115	60	PZ3	100
N 8 x 120/80 F (100)	513704	8	40	120	135	80	PZ3	100

Technical data

Hammerfix N-PK/-S M/-S D A2



N-P K with flat edge and plastic nail

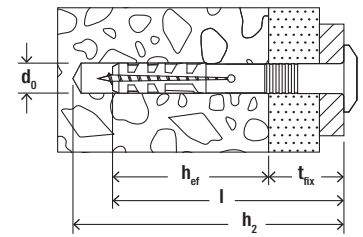


N-S M with nail and connection thread M6



N-S D A2 with isolating washer and nail

Item	Item No. gvz	Drill hole diameter	Effect. anchorage depth	Anchor length	Max. fixture thickness	Min. drill hole depth for through fixings	Washer	Drive	Sales unit
		d_0 [mm]	h_{ef} [mm]	l [mm]	t_{fix} [mm]	h_2 [mm]	[Ø mm]		[pcs]
N 6 x 40/7 P K (50)	050342	6	30	40	7	55	—	—	50
N 6 x 40/10 S M6 (50)	050398	6	30	40	10	55	—	—	50
N 6 x 40/10 S D A2 (50)	050367	6	30	40	10	55	19	PZ2	50
N 6 x 60/30 S D A2 (50)	050368	6	30	60	30	75	19	PZ2	50



Technical data

Hammerfix N-P



N-P with flat edge and nail

N-P A2 with flat edge and stainless steel A2 nail

Item	Zinc-plated steel	Stainless steel A2	Drill hole diameter	Effect. anchorage depth	Anchor length	Min. drill hole depth for through fixings	Max. fixture thickness	Drive	Sales unit
	Item No.	Item No.	d_0 [mm]	h_{ef} [mm]	l [mm]	h_2 [mm]	t_{fix} [mm]		[pcs]
N 5 x 30/5 P (100)	050338	—	5	25	30	45	5	PZ2	100
N 6 x 30/1 P (100)	514869	—	6	30	30	45	1	PZ2	100
N 6 x 40/7 P (50)	050339	050369	6	30	40	55	7	PZ2	50
N 6 x 40/7 P (100)	048795	—	6	30	40	55	7	PZ2	100
N 6 x 40/7 P (200)	514871	—	6	30	40	55	7	PZ2	200
N 8 x 40/1 P (50)	015903	—	8	40	40	55	1	PZ3	50
N 8 x 40/1 P (100)	514870	—	8	40	40	55	1	PZ3	100

Loads

Hammerfix N

Recommended loads¹⁾ for a single anchor.

The given loads are valid for screw nails with the specified diameter.

Type		N 5	N 6 ³⁾	N 8	N 10
Screw nail diameter	[mm]	3.5	4	5	7
Recommended loads in the respective base material $F_{rec}^{2)}$					
Concrete	$\geq C20/25$	[kN] 0.20	0.25	0.27	0.33
Solid brick	$\geq Mz 12$	[kN] 0.14	0.18	0.24	0.30
Solid sand-lime brick	$\geq KS 12$	[kN] 0.18	0.22	0.24	0.33
Solid brick of lightweight aggregate concrete	$\geq V 4$	[kN] 0.05	0.12	0.15	0.16
Aerated concrete	$\geq AAC 2$	[kN] 0.03	0.04	0.05	0.10
Aerated concrete	$\geq AAC 4$	[kN] 0.07	0.10	0.13	0.16

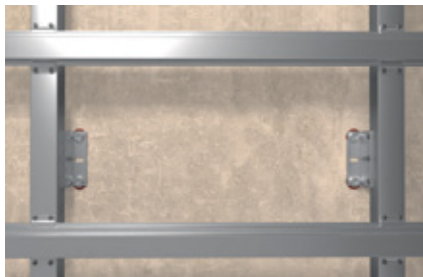
¹⁾ Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

³⁾ The values have to be reduced by 50% for N 6 x 40/7 P K.

Frame fixing SXR

The efficient with short expansion element



Façade substructures



Façade substructures

Applications

- Façade, ceiling and roof substructures made of wood and metal
- Windows
- Gates and doors
- Wardrobes
- Kitchen hanging cabinets
- Squared timbers
- Beams
- TV consoles
- Wall covering
- Metal brackets
- Metal supports
- Cable ducts
- Cable trays

Advantages

- The special functioning allows for use in solid and hollow building materials with an anchorage depth of just 50 mm, ensuring an economical fixing.
- The ETA assessment covers use in a range of solid and hollow building materials, and guarantees a secure fixing.
- The specially developed combination of plugs and screws ensures the very best handling. The plug has a noticeable hold, making installation more convenient.
- Extensive range with diameters of 6, 8 and 10 mm, usable lengths up to 210 mm.

Certificates



ETA-07/0121, multiple use for non-structural applications



Fire resistance classification R90



INOX STAINLESS STEEL



Building materials

Approved for:

- Concrete \geq C12/15
- Vertically perforated brick
- Hollow blocks made from lightweight concrete
- Perforated sand-lime brick
- Solid sand-lime brick
- Aerated concrete
- Solid block made from lightweight and normal weight concrete
- Solid brick
- Thermal insulation blocks

Also suitable for:

- Natural stone with dense structure
- Solid panel made from gypsum

Functioning

- The SXR is suitable for push-through installation.
- The SXR expands in solid building materials. In hollow building materials the loads are transmitted to the substrate webs.
- With vertically perforated bricks, only use rotary drilling (no impact drilling).
- SXR-T with countersunk head screw is recommended for the installation of timber constructions; in the case of metal constructions, use SXR-FUS with a wide sleeve rim and a moulded washer on the screw, which also features an integrated hexagon socket.

Versions

- Zinc-plated steel
- Stainless steel A4 - Duplex steel
- Hot-dip galvanised steel

For use with:

BS Brush

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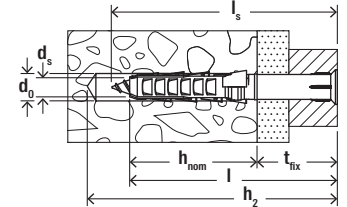
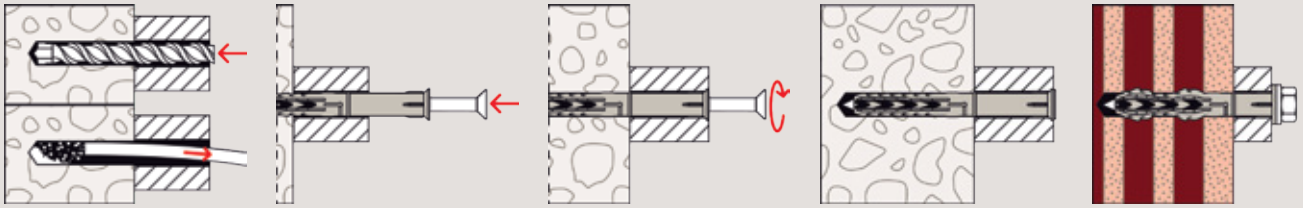


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Installation SXR - Push Through



4

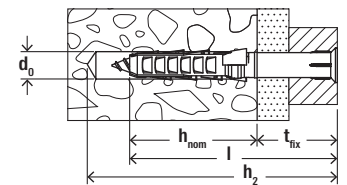
Technical data

Frame fixing SXR



SXR without screw

Item	Item No.	Drill hole diameter	Min. drill hole depth for through fixings	Min. anchorage depth	Anchor length	Screw diameter	Min. screw length	Max. fixture thickness	Sales unit
		d_0 [mm]	h_2 [mm]	h_{nom} [mm]	l [mm]	d_s [mm]	l_s [mm]	t_{fix} [mm]	[pcs]
SXR 6 x 60	503230	6	70	30	60	4,5	65	30	100
SXR 8 x 60	506194	8	70	50	60	5,5 - 6,0	65	10	100
SXR 8 x 80	506196	8	90	50	80	5,5 - 6,0	85	30	100
SXR 8 x 100	506198	8	110	50	100	5,5 - 6,0	125	50	100
SXR 8 x 120	506199	8	130	50	120	5,5 - 6,0	105	70	100



Technical data

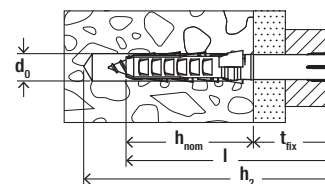
Frame fixing SXR-Z



SXR-Z - with zinc-plated countersunk head screw with cross drive PZ

Item	Item No.	Drill hole diameter	Min. drill hole depth for through fixings	Min. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
		d_0 [mm]	h_2 [mm]	h_{nom} [mm]	l [mm]	t_{fix} [mm]		[pcs]
SXR 6 x 60 Z	503233 ¹⁾	6	70	30	60	30	PZ2	50

1) not pre-assembled



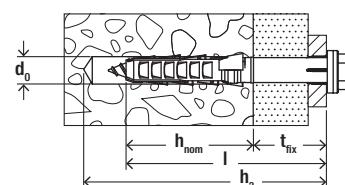
Technical data

Frame fixing SXR-T



SXR-T with fischer counter-sunk head safety screw

Item	Zinc-plated steel	Stainless steel	Hot-dip galvanised steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Min. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
	Item No.	Item No.	Item No.		d_0 [mm]	h_2 [mm]	h_{nom} [mm]	l [mm]	t_{fix} [mm]		
	gvz	R	hdg	ETA							
SXR 8 x 60 T	502999	—	—	●	8	70	50	60	10	T30	50
SXR 8 x 80 T	503000	—	—	●	8	90	50	80	30	T30	50
SXR 8 x 100 T	503001	—	—	●	8	110	50	100	50	T30	50
SXR 8 x 120 T	503002	—	—	●	8	130	50	120	70	T30	50
SXR 10 x 80 T	046263	046272	—	●	10	90	50	80	30	T40	50
SXR 10 x 100 T	046264	046274	—	●	10	110	50	100	50	T40	50
SXR 10 x 100 T	—	—	509534	—	10	110	50	100	50	T40	50
SXR 10 x 120 T	046265	046278	—	●	10	130	50	120	70	T40	50
SXR 10 x 120 T	—	—	509535	—	10	130	50	120	70	T40	50
SXR 10 x 140 T	046266	046279	—	●	10	150	50	140	90	T40	50
SXR 10 x 140 T	—	—	509536	—	10	150	50	140	90	T40	50
SXR 10 x 160 T	046267	046283	—	●	10	170	50	160	110	T40	50
SXR 10 x 180 T	046268	046285	—	●	10	190	50	180	130	T40	50
SXR 10 x 200 T	046269	046286	—	●	10	210	50	200	150	T40	50
SXR 10 x 230 T	046270	046287	—	●	10	240	50	230	180	T40	50
SXR 10 x 260 T	046271	—	—	●	10	270	50	260	210	T40	50



Technical data

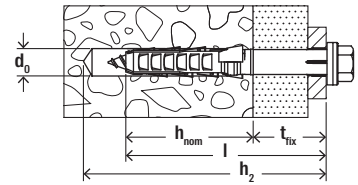
Frame fixing SXR-FUS



SXR-FUS - with fischer hexagon head safety screw, moulded washer and integrated T40 bit recess

Item	Zinc-plated steel	Stainless steel	Hot-dip galvanised steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Min. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
	Item No.	Item No.	Item No.		d_0 [mm]	h_2 [mm]	h_{nom} [mm]	l [mm]	t_{fix} [mm]		
	gvz	R	hdg	ETA							
SXR 10 x 52 FUS	502456 ¹⁾	—	—	●	10	62	50	52	2	T40/SW13	50
SXR 10 x 60 FUS	046329	046339	—	●	10	70	50	60	10	T40/SW13	50
SXR 10 x 60 FUS	—	—	509537	—	10	70	50	60	10	T40/SW13	50
SXR 10 x 80 FUS	046330	046340	—	●	10	90	50	80	30	T40/SW13	50

1) not pre-assembled



Technical data

Frame fixing SXR-FUS



SXR-FUS - with fischer hexagon head safety screw, moulded washer and integrated T40 bit recess

	Zinc-plated steel	Stainless steel	Hot-dip galvanised steel	Approval	Drill hole diameter	Min. drill hole depth for through fixings	Min. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
	Item No.	Item No.	Item No.		d_0 [mm]	h_2 [mm]	h_{nom} [mm]	l [mm]	t_{fix} [mm]		[pcs]
Item	gvz	R	hdg	ETA							
SXR 10 x 80 FUS	—	—	509538	—	10	90	50	80	30	T40/SW13	50
SXR 10 x 100 FUS	046331	046342	—	●	10	110	50	100	50	T40/SW13	50
SXR 10 x 100 FUS	—	—	509539	—	10	110	50	100	50	T40/SW13	50
SXR 10 x 120 FUS	046332	046343	—	●	10	130	50	120	70	T40/SW13	50
SXR 10 x 140 FUS	046333	046344	—	●	10	150	50	140	90	T40/SW13	50
SXR 10 x 140 FUS	—	—	509540	—	10	150	50	140	90	T40/SW13	50
SXR 10 x 160 FUS	046334	046345	—	●	10	170	50	160	110	T40/SW13	50
SXR 10 x 180 FUS	046335	046361	—	●	10	190	50	180	130	T40/SW13	50
SXR 10 x 200 FUS	046336	046362	—	●	10	210	50	200	150	T40/SW13	50
SXR 10 x 230 FUS	046337	046363	—	●	10	240	50	230	180	T40/SW13	50
SXR 10 x 260 FUS	046338	—	—	●	10	270	50	260	210	T40/SW13	50

1) not pre-assembled

Accessories

Washer U



U

		External-Ø	Hole-Ø	Thickness	Matching anchor type	Sales unit
	Item No.	d [mm]	D [mm]	S [mm]		[pcs]
Item						
U 11,5 x 21 x 1,5 DIN 522 A2	010026	21	11.5	1.5	SXR 10, SXRL 10, FUR 10	500

Accessories

Aircrete hole punch GBS



GBS

Item	Item No.	Drill hole d_0 [Ø mm]	Min. drill hole depth for through fixings h_2 [mm]	Match	Sales unit [pcs]
GBS 10 x 80	050590 ¹⁾	9	85	SXR 10 x 52, SXR 10 x 60, SXR 10 x 80	1
GBS 10 x 100	050591 ¹⁾	9	105	SXR 10 x 100	1
GBS 10 x 135	050593 ¹⁾	9	140	SXR 10 x 120	1
GBS 10 x 160	050594 ¹⁾	9	165	SXR 10 x 140, SXR 10 x 160	1
GBS 10 x 185	050595 ¹⁾	9	190	SXR 10 x 180	1
GBS 10 x 230	050596 ¹⁾	9	235	SXR 10 x 200, SXR 10 x 230	1

¹⁾ According to the ETA, the aircrete hole punch GBS must be used for drill-hole production in aerated concrete PB < 4N/mm².

Loads

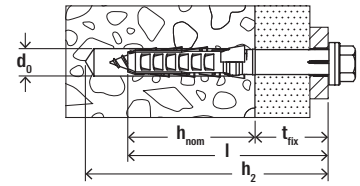
Frame fixing SXR

Recommended loads¹⁾ of a single anchor as part of a multiple fixing of non-structural systems.
The given loads are valid for wood screws with the specified diameter.

Type			SXR 6	SXR 8
Screw diameter		[mm]	4.5	6.0
Anchorage depth	h_{nom}	[mm]	30	50
Minimum edge distance concrete	c_{min}	[mm]	50	60
Recommended loads in the respective base material F_{rec} ²⁾				
Concrete	≥ C20/25	[kN]	0.25	0.40
Solid brick	≥ Mz 12	[kN]	0.20	0.30
Solid sand-lime brick	≥ KS 12	[kN]	0.20	0.30
Vertically perforated brick	≥ Hlz 12; $\rho \geq 1.0$ [kg/dm ³]	[kN]	0.10	0.10
Perforated sand-lime brick	≥ KSL 12	[kN]	0.20	0.30

¹⁾ Valid for zinc coated screws (gvz) and for screws made of stainless steel (R). For exterior use of the zinc coated screws measures against incoming humidity have to be taken. Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.



Loads

Frame fixing SXR			
Permissible loads ¹⁾²⁾³⁾ of a single anchor as part of a multiple fixing of non-structural systems. For the design the complete current assessment ETA-07/0121 has to be considered.			
Type		SXR 8	SXR 10
Anchor diameter		[mm] 8	10
Anchorage depth	h_{nom}	[mm] 50	50
Anchorage in concrete \geq C12/15			
Permissible tensile load N_{perm}		[kN] 0.99	1.79
Permissible shear load V_{perm}	zinc coated screws (gvz)	[kN] 4.23	5.98
	stainless steel screw (R)	[kN] 3.93	5.98
Minimum member thickness	h_{min}	[mm] 100	100
Characteristic edge distance	$c_{cr,N}$	[mm] 70	140
Characteristic spacing	a resp. $s_{cr,N}$	[mm] 70	100
Minimum spacing	s_{min}	[mm] 70	70
with an edge distance	$c \geq$	[mm] 70	210
Minimum edge distance	c_{min}	[mm] 70	85
with a spacing	$s \geq$	[mm] 70	100
Anchorage in narrow concrete members ($h \geq 40$ mm) made of concrete \geq C12/15, e.g. weather shells of triple-skin outer wall panels			
Permissible tensile load N_{perm}		[kN] –	1.19
Permissible shear load V_{perm}		[kN] –	5.98
Anchorage in masonry			
Permissible load ⁴⁾ F_{perm} in solid brick	\geq Mz 12/1.8; \geq NF	[kN] 0.57	0.57
	\geq Mz 20/1.8; \geq NF	[kN] 0.71	0.86
Permissible load ⁴⁾ F_{perm} in solid sand-lime brick	\geq KS 10/1.8; \geq NF	[kN] 0.57	0.57
	\geq KS 20/1.8; \geq NF	[kN] 0.71	0.71
Permissible load ⁴⁾ F_{perm} in lightweight concrete block	\geq Vbl 2; $\rho \geq 1.2$ kg/dm ³	[kN] 0.26	0.21
	\geq Vbl 6; $\rho \geq 1.6$ kg/dm ³	[kN] 0.26	0.71
Permissible load ⁴⁾⁵⁾ F_{perm} in vertically perforated brick	\geq HLz 12; $\rho \geq 1.0$ kg/dm ³	[kN] 0.17	0.26
Permissible load ⁴⁾ F_{perm} in perforated sand-lime brick	\geq KSL 8; $\rho \geq 1.4$ kg/dm ³	[kN] 0.26	0.43
	\geq KSL 12; $\rho \geq 1.4$ kg/dm ³	[kN] 0.57	0.57
Permissible load ⁴⁾⁵⁾ F_{perm} in hollow lightweight concrete blocks	\geq Hbl 2; $\rho \geq 0.7$ kg/dm ³	[kN] –	0.43
	\geq Hbl 6; $\rho \geq 1.2$ kg/dm ³	[kN] 0.43	0.57
Minimum member thickness	h_{min}	[mm] 100	100
Minimum spacing (single anchor)	a_{min}	[mm] 250	250
Minimum spacing (anchor group)	s_{min}	[mm] 100	100
Minimum edge distance (anchor group)	c_{min}	[mm] 100	100
Anchorage in aerated concrete			
Permissible load ⁴⁾ F_{zul} in aerated concrete	AAC ≥ 2 N/mm ²	[kN] –	0.14 ⁶⁾
	AAC ≥ 4 N/mm ²	[kN] –	0.27
	AAC ≥ 6 N/mm ²	[kN] –	0.27
Minimum member thickness	h_{min}	[mm] –	100
Minimum spacing (single anchor)	a_{min}	[mm] –	250
Minimum spacing (anchor group)	s_{min}	[mm] –	400
Minimum edge distance (anchor group)	c_{min}	[mm] –	100

¹⁾ Valid for zinc coated screws (gvz) and for screws made of stainless steel (R). For exterior use of the zinc coated screws measures against incoming humidity according to assessment have to be taken.

²⁾ The required partial safety factors for material resistance as well as a partial safety factor for load actions $\gamma_L = 1.4$ are considered.

As a single anchor counts e.g. an anchor with a minimum spacing according to assessment.

³⁾ Valid for temperatures in the substrate up to +50 °C (resp. short term up to +80 °C).

⁴⁾ Valid for tensile load, shear load and oblique load under any angle. For combinations of tensile loads, shear loads and bending moments see assessment.

⁵⁾ Rotary drilling.

⁶⁾ Drill holes to be made with aerated concrete hole punch.

Metal frame fixing F-M

The fixing for stress-free installation of window and door frames with fire classification



Fire protection doors

Applications

- Window frames
- Door frames
- Squared timbers

Advantages

- The F-M metal frame plug achieves fire resistance R 120. This allows for use in areas where fire resistance is relevant.
- The operating principle prevents the window frame from being pulled against the substrate, and ensures a stress-free and long-lasting fixing of the frame.
- The special plug geometry anchors the

metal and plastic profiles against compressive and tensile loads, and allows for a secure hold of the window frame.

- The cover caps (available separately) can be used to discreetly cover the screw heads.

Certificates



Fire resistance classification
R120

Building materials

- Concrete
- Vertically perforated brick
- Hollow blocks made from lightweight concrete
- Perforated sand-lime brick
- Solid sand-lime brick
- Aerated concrete
- Solid brick made from lightweight concrete
- Solid brick

Functioning

- The F-M is suitable for push-through installation.
- By tightening the screw, the cone is drawn into the sleeve and the fixing is expanded which wedges it inside the drill hole. The window frames are thus fixed in a stress-free manner.
- The maximum installation torque is 5 Nm.

For use with:

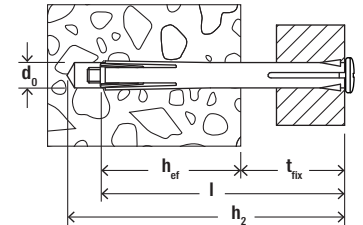
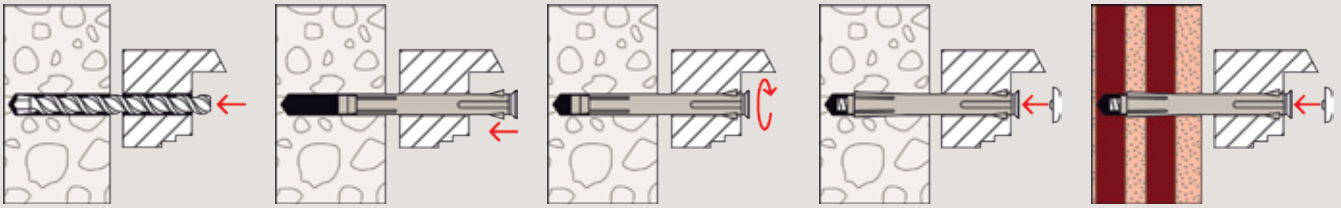
BS Brush 33



AB G 33



Installation F-M - Push through



Technical data

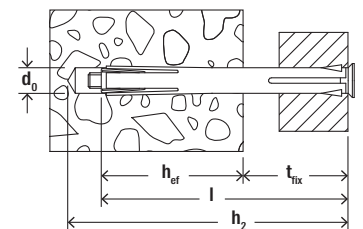
Metal frame fixing F-M



F 8 M - with zinc-plated raised countersunk screw and cross drive PZ2

Item	Item No.	Drill hole diameter	Min. drill hole depth for through fixings	Effect. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
		d_0 [mm]	h_2 [mm]	h_{ef} [mm]	l [mm]	t_{fix} [mm]		
F 8 M 72	088660 ¹⁾	8	90	30	72	42	PZ2	100
F 8 M 92	088662 ¹⁾	8	110	30	92	62	PZ2	100
F 8 M 112	088664 ¹⁾	8	130	30	112	82	PZ2	100
F 8 M 132	088666 ¹⁾	8	150	30	132	102	PZ2	100

1) Screw head \varnothing 10 mm



Technical data

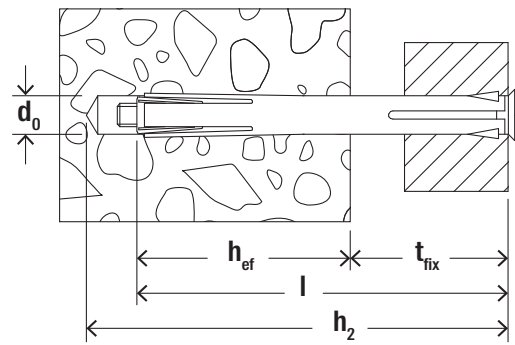
Metal frame fixing F-M



F 10 M - with zinc-plated countersunk head screw and cross drive PZ3

Item	Item No.	Drill hole diameter	Min. drill hole depth for through fixings	Effect. anchorage depth	Anchor length	Max. fixture thickness	Drive	Sales unit
		d_0 [mm]	h_2 [mm]	h_{ef} [mm]	l [mm]	t_{fix} [mm]		
F 10 M 72	088670 ¹⁾	10	90	30	72	42	PZ3	100
F 10 M 92	088672 ¹⁾	10	110	30	92	62	PZ3	100
F 10 M 112	088674 ¹⁾	10	130	30	112	82	PZ3	100

1) Screw head \varnothing 13 mm



4

Technical data

Metal frame fixing F-M



F 10 M - with zinc-plated countersunk head screw and cross drive PZ3

Item	Item No.	Drill hole diameter d_0 [mm]	Min. drill hole depth for through fixings h_2 [mm]	Effect. anchorage depth h_{ef} [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Drive	Sales unit [pcs]
F 10 M 132	088676 ¹⁾	10	150	30	132	102	PZ3	100
F 10 M 152	088678 ¹⁾	10	170	30	152	122	PZ3	100
F 10 M 182	088680 ¹⁾	10	200	30	182	152	PZ3	50
F 10 M 202	061064 ¹⁾	10	220	30	202	172	PZ3	50

1) Screw head \varnothing 13 mm

Accessories

Cover cap (F-M)



ADM 10 W

Item	Item No.	Colour	Cap height [mm]	Cap [\varnothing mm]	Match	Sales unit [pcs]
ASM 10 W	060320	white	3	15	F 10 M	100
ADM 10 W	088688	white	4	16,5	F 10 M	100

Loads

Metal frame fixing F-M

Recommended loads¹⁾ of a single anchor as part of a multiple fixing of non-structural systems.

Type		F 8 M	F 10 M
Recommended loads in the respective base material F_{rec}²⁾			
Concrete	≥ C20/25	[kN] 1.00	1.40
Solid brick	≥ Mz 12	[kN] 0.30	1.30
Solid sand-lime brick	≥ KS 12	[kN] 0.70	1.30
Solid brick of lightweight aggregate concrete	≥ V 2	[kN] -	0.50
Perforated sand-lime brick	≥ KSL 6	[kN] 0.25	0.60






¹⁾ Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.



5

General fixings

Expansion plug S	68	
DuoPower	70	
DuoSeal	73	
Repair pad FixIt	76	
Doorstop TS	78	

Expansion plug S

The installation-friendly nylon plug with 2-way expansion



Small shelves



Signs

5

Applications

- Pictures
- Lighting
- Skirting
- Light shelves
- Mirror cabinets
- Letter boxes
- Motion detectors
- Information boards
- Curtain rails
- Electrical installations

Advantages

- The rimless plug sleeve allows for the plug to be set as deep as required below the plaster to the bearing substrate to achieve the maximum load-bearing capacity.
- As the plug only expands in two directions, it is possible to direct the expansion forces so that they run parallel to the edge of the building material by turning

the plug. This allows for smaller edge distances.

- The slimline plug geometry makes it easy to push the plug into the drill hole. For a fast and simple installation.
- The anti-rotation lock prevents the plug rotating in the drill hole, thus guaranteeing a high level of installation safety.

Certificates



Building materials

- Concrete
- Solid sand-lime brick
- Natural stone with dense structure
- Solid brick made from lightweight concrete
- Solid brick

Functioning

- The expansion plug S is suitable for pre-positioned and push-through installation.
- When turning in the screw, the expansion plug S expands in two directions, thus providing a secure anchoring in the building material.
- The required screw length is given by the plug length + plaster and/or insulation material thickness + fixture thickness + 1 x screw diameter.
- Suitable for wood and chipboard screws.
- The edge distance must be at least one plug length.
- For installations close to the edge, turn the plug so that the expansion force acts parallel to the edge.

For use with:

BS Brush

33

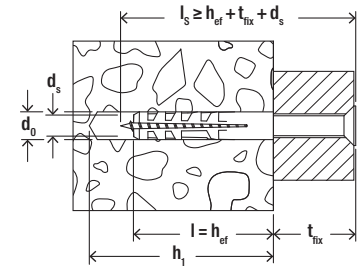
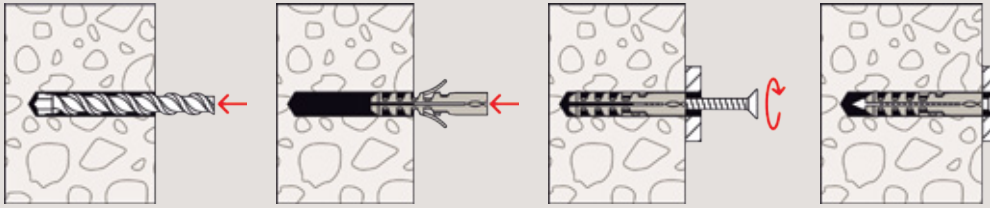


AB G

33



Installation plug S - Pre-positioned



5

Technical data

Expansion plug S



S

Item	Standard	Drill hole diameter	Anchor length	Min. drill hole depth	Wood and chipboard screws	Sales unit
	Item No.	d_0 [mm]	l [mm]	h_1 [mm]	d_s [mm]	[pcs]
S 4	050104	4	20	25	2 - 3	200
S 5	050105	5	25	35	3 - 4	100
S 6	050106	6	30	40	4 - 5	100
S 8	050108	8	40	55	4,5 - 6	100
S 10	050110	10	50	70	6 - 8	50
S 12	050112	12	60	80	8 - 10	25
S 14	050114	14	75	90	10 - 12	20
S 16	050116	16	80	100	12 (1/2")	10
S 20	050120	20	90	120	16	5

Loads

S-Plug

Highest recommended loads¹⁾ for a single anchor.
The given loads are valid for wood screws with the specified diameter.

Type		S 4	S 5	S 6	S 8	S 10	S 12	S 14	S 16	S 20
Wood screw diameter	[mm]	3	4	5	6	8	10	12	12	16
Min. edge distance concrete c_{min}	[mm]	20	25	30	40	50	60	70	80	100
Recommended loads in the respective base material F_{rec} ²⁾										
Concrete \geq C20/25	[kN]	0.16	0.28	0.40	0.60	1.10	1.50	1.85	2.26	3.88
Solid brick \geq Mz 12	[kN]	0.14	0.24	0.28	0.50	³⁾	³⁾	³⁾	³⁾	³⁾
Solid sand-lime brick \geq KS 12	[kN]	0.14	0.24	0.28	0.55	³⁾	³⁾	³⁾	³⁾	³⁾
Aerated concrete \geq AAC 4 (G4)	[kN]	³⁾	³⁾	0.05	0.07	0.16	0.28	0.40	³⁾	³⁾
Gypsum block	[kN]	³⁾	³⁾	³⁾	0.15	0.23	0.37	0.60	³⁾	³⁾

¹⁾ Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

³⁾ Due to that the failure of the substrate varies too much no reproducible values can be given.

DuoPower

The duo of power and intelligence



Wall applications



Wall consoles

5

Applications

- TV consoles
- Lighting
- Shelves
- Mirror cabinets
- Letter boxes
- Pictures
- Fixing blinds
- Curtain rails
- Wash basin fixings
- Plumbing and heating fixings
- Bath and toilet installations
- Wall cabinets
- Range hood

Advantages

- Two component materials for top load values and intelligent functioning (expansion, folding, knotting), depending on building material - solid, perforated or panel material.
- Great feedback (feel-good-factor) of the plug. You can feel exactly when the plug is installed perfectly.
- The narrow plug rim prevents slipping into the drill hole.
- The serrated anti-rotation feature interlock in the building material and prevents rotation in the drill hole during installation.
- The greater anchorage depth of the Duo Power 6 x 50, 8 x 65 and 10 x 80 means that the plug is especially suited to fixings in hollow building materials, aerated concrete and to bridge plaster.

Certificates



Building materials

- Concrete
- Solid brick
- Solid sand-lime brick
- Aerated concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Plasterboard
- Gypsum plasterboard and gypsum fibreboards
- Hollow blocks made from lightweight concrete
- Cavity floor slabs made from bricks and concrete or similar
- Natural stone
- Chipboard
- Solid panel made from gypsum
- Solid brick made from lightweight concrete

Functioning

- The grey component made from high quality nylon automatically activates for the optimum product function (expansion, folding, knotting) for the best hold.
- The red expansion wings support the safe expansion and offer additional safety for the grey component.
- The smooth-running opening allows the simple positioning of the screw and the secure guiding and fixing in the screw channel.
- The required screw length is given by the plug length + fixture thickness + the screw diameter.
- Suitable for wood and chipboard screws, as well as stud screws.
- In the case of fixing boards, the threadless part of the screw must not be longer than the fixture.

For use with:

BS Brush

33

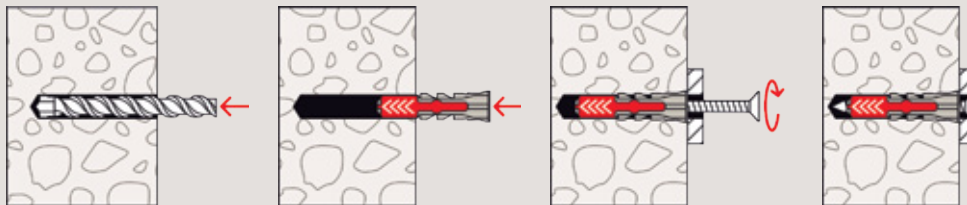


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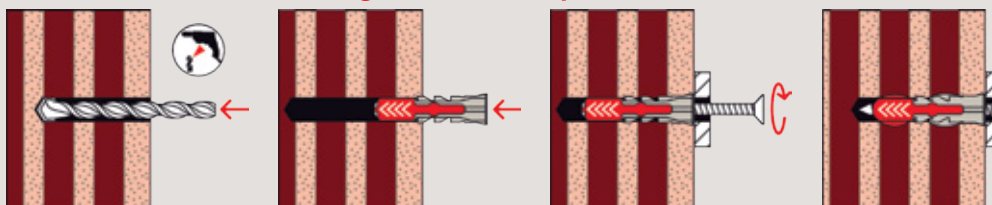
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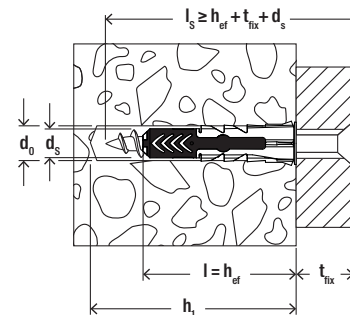
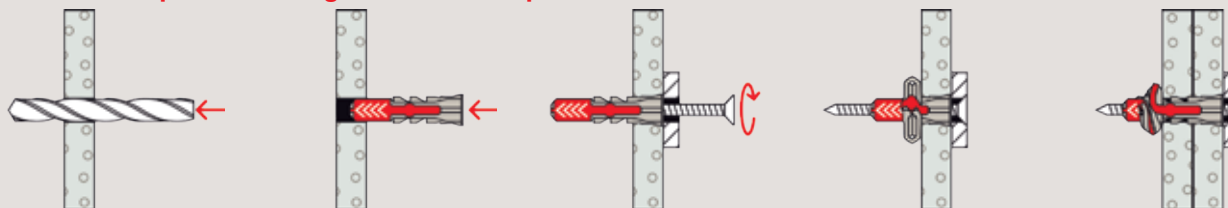
Installation in solid building materials Pre-positioned



Installation in hollow building materials Pre-positioned



Installation in panel building materials Pre-positioned



Technical data

2-component plug DuoPower

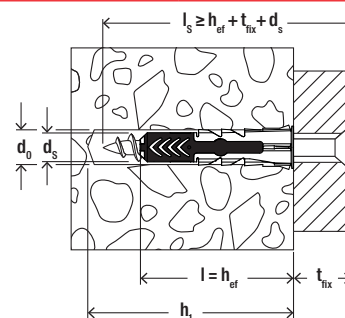


DuoPower



DuoPower with greater anchorage depth

Item	without screw	with screw	Drill hole diameter	Min. drill hole depth	Min. panel thickness	Min. bolt penetration	Anchor length	Wood and chipboard screws	Drive	Max. fixture thickness	Sales unit
	Item No.	Item No.	d_0 [mm]	h_1 [mm]	d_p [mm]	$l_{E,min}$ [mm]	l [mm]	$d_s / d_s \times l_s$ [mm]		t_{fix} [mm]	[pcs]
DuoPower 5 x 25	555005	—	5	35	12,5	29	25	3 - 4	—	—	100
DuoPower 6 x 30	555006	—	6	40	12,5	35	30	4 - 5	—	—	100
DuoPower 6 x 50	538240	—	6	60	12,5	55	50	4 - 5	—	—	100
DuoPower 8 x 40	555008	—	8	50	12,5	46	40	4,5 - 6	—	—	100
DuoPower 8 x 65	538241	—	8	75	2 x 12,5	71	65	4,5 - 6	—	—	50
DuoPower 10 x 50	555010	—	10	60	12,5	58	50	6 - 8	—	—	50
DuoPower 10 x 80	538242	—	10	100	—	88	80	6 - 8	—	—	25



Technical data

2-component plug DuoPower



DuoPower



DuoPower with greater anchorage depth

Item	without screw	with screw	Drill hole diameter	Min. drill hole depth	Min. panel thickness	Min. bolt penetration	Anchor length	Wood and chipboard screws	Drive	Max. fixture thickness	Sales unit
	Item No.	Item No.	d_0 [mm]	h_1 [mm]	d_p [mm]	$l_{E,min}$ [mm]	l [mm]	$d_s / d_s \times l_s$ [mm]		t_{fix} [mm]	[pcs]
DuoPower 12 x 60	538243	—	12	90	—	70	60	8 - 10	—	—	25
DuoPower 14 x 70	538244	—	14	90	—	82	70	10 - 12	—	—	20
DuoPower 5 x 25 S	—	555105	5	40	12,5	29	25	3,5 x 35	PZ2	6	50
DuoPower 6 x 30 S	—	555106	6	45	12,5	35	30	4,5 x 40	PZ2	5	50
DuoPower 6 x 30 S PH TX	—	545838	6	45	12,5	34	30	4,5 x 40	—	6	100
DuoPower 6 x 50 S	—	538245	6	65	12,5	55	50	4,5 x 60	PZ2	5	50
DuoPower 8 x 40 S	—	555108	8	60	12,5	45	40	5 x 55	PZ2	15	50
DuoPower 8 x 65 S	—	538246	8	85	2 x 12,5	70	65	5 x 80	PZ2	10	25
DuoPower 10 x 50 S	—	555110	10	74	12,5	57	50	7 x 69	SW 13 / TX 40	13	25
DuoPower 10 x 80 S	—	538247	10	112	—	87	80	7 x 107	SW 13	20	10
DuoPower 12 x 60 S	—	538248	12	85	—	68	60	8 x 80	SW 13	12	10
DuoPower 14 x 70 S	—	538249	14	100	—	80	70	10 x 95	SW 17	15	8

Loads

DuoPower

Highest recommended loads¹⁾ for a single anchor.

The given loads are valid for wood screws with the specified diameter.

Type		5 x 25	6 x 30	6 x 50	8 x 40	8 x 65	10 x 50	10 x 80	12 x 60	14 x 70
Wood screw diameter	[mm]	4	5	5	6	6	8	8	10	12
Min. edge distance concrete	C_{min} [mm]	30	35	35	50	50	65	65	80	100
Recommended loads in the respective base material $F_{rec}^{2)}$										
Concrete	$\geq C20/25$	[kN] 0.40	0.95	1.65	1.10	2.30	2.15	4.20	3.30	5.30
Solid brick	$\geq Mz 12$	[kN] 0.30	0.50	0.55	0.62	0.69	1.20	1.45	1.30	1.35
Solid sand-lime brick	$\geq KS 12$	[kN] 0.50	1.00	1.60	1.25	2.25	2.20	3.85	2.80	4.50
Aerated concrete	$\geq AAC 2 (G2)$	[kN] 0.05	0.10	0.15	0.10	0.16	0.20	0.30	0.24	0.35
Aerated concrete	$\geq AAC 4 (G4)$	[kN] 0.25	0.38	0.55	0.42	0.60	0.60	1.10	1.00	1.45
Vertically perforated brick	$\geq Hlz 12 (\rho \geq 0.9 \text{ kg/dm}^3)$	[kN] 0.13	0.15	0.17	0.25	0.40	0.25	0.40	0.35	0.40
Perforated sand-lime brick	$\geq KSL 12 (\rho \geq 1.6 \text{ kg/dm}^3)$	[kN] 0.40	0.60	0.60	0.70	1.00	0.70	2.00	0.75	1.50
Gypsum block	$(\rho \geq 0.9 \text{ kg/dm}^3)$	[kN] 0.10	0.18	0.37	0.25	0.50	0.35	0.65	0.50	0.50
Gypsum fibreboard	12.5 mm	[kN] 0.24	0.33	0.35	0.35	-	0.50	-	-	-
Gypsum plasterboard	12.5 mm	[kN] 0.12	0.15	0.15	0.15	-	0.15	-	-	-
Gypsum plasterboard	2 x 12.5 mm	[kN] 0.13	0.15	0.24	0.20	0.32	0.30	-	-	-
Mattone Forato Typ F8		[kN] 0.30	0.30	-	0.25	-	0.25	-	-	-
Tramezza Doppio UNI 19		[kN] 0.15	0.15	0.23	0.15	0.30	0.20	0.52	0.35	0.35
Sepa Parpaing		[kN] 0.30	0.45	0.25 ³⁾	0.45	0.45 ³⁾	0.45	0.45 ³⁾	0.60 ³⁾	0.60 ³⁾

¹⁾ Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

³⁾ Load determination on plastered wall.

DuoSeal

The sealing plug for wet areas



Fixings on tiled surfaces



Accessories in wet areas

5

Applications

In Tiled non-permanent wet areas, like:

- Bathrooms
- Kitchen
- Spas
- Laundry room
- Swimming pool Surroundings
- Steam bath
- Sports facilities

Suitable for:

- Bathroom accessories
- Faucets
- Shower panels
- Mirrors
- Light shelves
- Hair dryer holder
- Kitchen accessories
- Tubes

Certificates



Advantages

- The DuoSeal completely seals drill holes in tiles without additional sealing compound and thus prevents structural damage caused by moisture in the building material.
- The DuoSeal is ideally suited for tiled surfaces which are exposed to very frequent splash water and temporarily accumulating water.
- The watertightness is confirmed in accordance with ETAG 022 and DIN 18534 up to the water exposure class W3-I. In any case, please take note of the general

national regulations on the use of plugs in wet areas.

- It's red component ensures a secure hold in all building materials. Thus, the DuoSeal achieves the same load values as conventional nylon plugs.
- The stainless-steel screw included in the set is ideally suited for installation in wet areas and avoids rusting.
- The soft plastic rim closes the drill hole completely and flexibly adapts to the shape of the attachment part.

Building materials

- Concrete
- Solid brick
- Solid sand-lime brick
- Aerated concrete
- Vertically perforated brick
- Perforated sand-lime brick
- Gypsum plasterboard
- Gypsum fibreboard
- Plasterboard

Functioning

- The DuoSeal is only suitable for application on tiles and can only be mounted as pre-position installation.
- The DuoSeal can be installed gently on tiles with just a few hammer blows. The rim of the shaft prevents the plug from being set too deep and additionally seals the drill hole.
- The red component made of high-quality nylon automatically activates the optimum function principle depending on the building material for best hold.
- The soft grey component is pressed against the drill hole wall by screwing in the screw and seals the drill hole completely.
- The grooves in the plug shaft compensate for unevenness in the hole, so that the sealing function is guaranteed even if the drill hole is not perfect.

For use with:

BS Brush

33

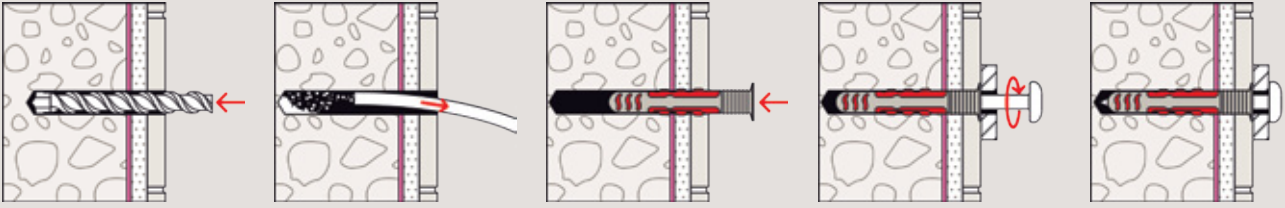


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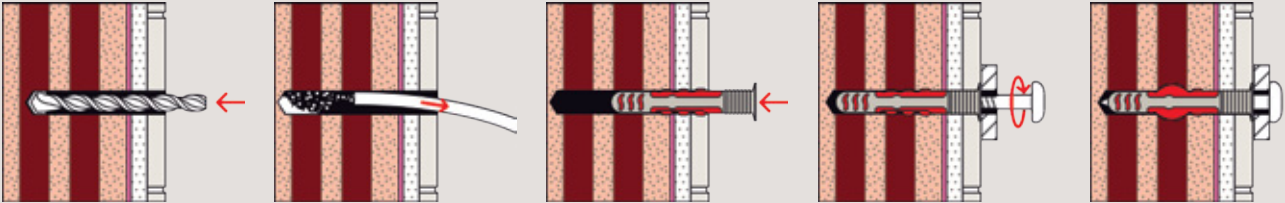
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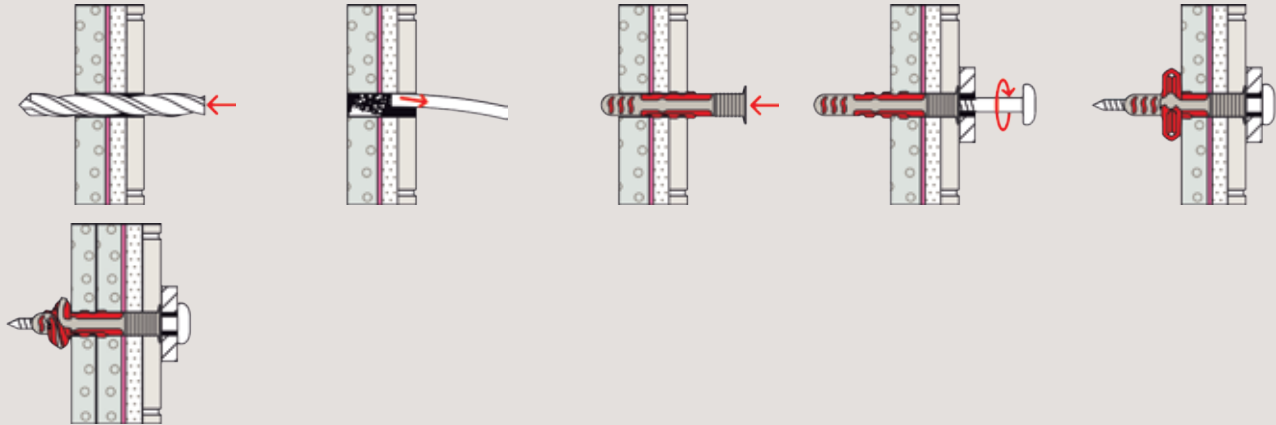
Installation in solid building materials Pre-positioned



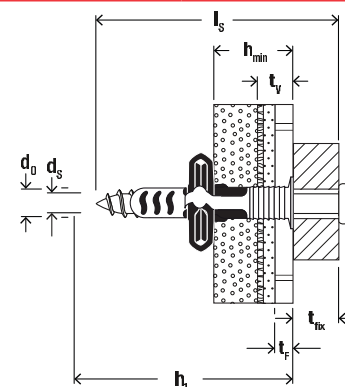
Installation in masonry building materials Pre-positioned



Installation in panel building materials Pre-positioned



5



Technical data

DuoSeal with A2 screw



Item	Item No.	Drill diameter	Drill hole diameter tolerance	Min. drill hole depth	Max. fixture thickness	Min. building material thickness	Screw	Drive	Sealing depth	Tile thickness	Sales unit
		d_0 [mm]	[mm]	h_1 [mm]	t_{fix} [mm]	h_{min} [mm]	$d_s \times l_s$ [mm]		t_v [mm]	t_F [mm]	[pcs]
DuoSeal 6 x 38 S A2	557727	6	6,0 - 6,40	$65 - t_{fix}$	12	22	4,5 x 60	TX20	5 - 14	5 - 10	50
DuoSeal 8 x 48 S A2	557728	8	8,0 - 8,45	$75 - t_{fix}$	16	25	6 x 70	TX30	5 - 14	5 - 10	25

Loads

DuoSeal

Recommended loads¹⁾ for a single anchor.

Type		DuoSeal 6	DuoSeal 8
Screw diameter	[mm]	4.5	6.0
Recommended loads in the respective base material F_{rec} ^{2) 3)}			
Concrete	$\geq C20/25$	[kN] 0.40	0.60
Solid brick	$\geq Mz 12$	[kN] 0.20	0.30
Solid sand-lime brick	$\geq KS 12$	[kN] 0.30	0.40
Aerated concrete	$\geq ACC 2$	[kN] 0.10	0.10
Vertically perforated brick	$\geq HLZ 12$	[kN] 0.20	0.30
Perforated sand-lime brick	$\geq KSL 12$	[kN] 0.30	0.40
Gypsum plasterboard impregnated (green)	12.5 mm	[kN] 0.10	0.10 ⁴⁾
Gypsum plasterboard impregnated (green)	2 x 12.5 mm	[kN] 0.15	0.15
Gypsum plasterboard hard and impregnated (e. g. Knauf Diamant board or Rigipis Die Harte)	12.5 mm	[kN] 0.15	0.15
Gypsum plasterboard hard and impregnated (e. g. Knauf Diamant board or Rigipis Die Harte)	2 x 12.5 mm	[kN] 0.20	0.20
Gypsum fibreboard	12.5 mm	[kN] 0.20	0.20
Gypsum block	$\rho \geq 0.85 \text{ kg/dm}^3$	[kN] 0.10	0.10

¹⁾ Required safety factor is considered.

Load values are valid for using the supplied screws and under consideration of the total tile thickness: tile + tile glue + sealing compound.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

³⁾ Values apply to tile thickness 5 - 10 mm and total tile thickness 9.5 - 14.5 mm.

⁴⁾ Value applies to tile thickness 8 - 10 mm and total tile thickness 12.5 - 14.5 mm.

Repair pad FixIt

To repair over-sized or damaged drill holes



Repairing damaged drill holes



Repairing damaged drill holes

5

Applications

- To repair over-sized or damaged drill holes for use with plastic plugs

Advantages

- Using FixIt means that you can avoid having to drill another hole, and makes it possible to reuse a pre-existing drill hole.
- The repair pad FixIt can be used as a single layer or as multiple layers, and thus can be flexibly adapted to suit various drill

hole sizes and shapes.

- The pad, which is covered with a special mortar, hardens after only approx. three minutes in the drill hole. This allows for a fast installation of the fixture.

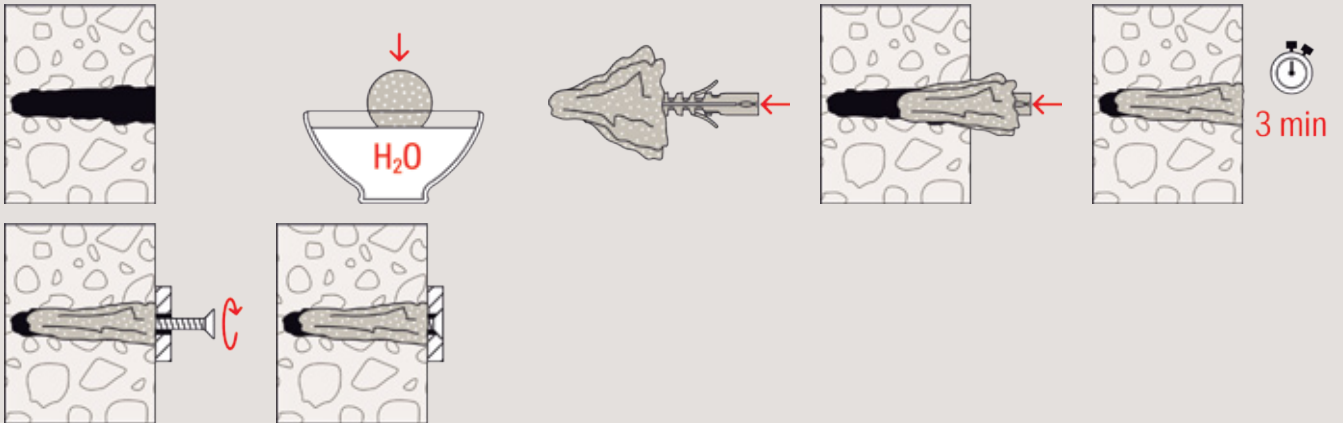
Building materials

- Concrete
- Cavity floor slabs made from bricks and concrete
- Vertically perforated brick made from lightweight concrete
- Solid sand-lime brick
- Natural stone with dense structure
- Aerated concrete
- Solid brick made from lightweight concrete
- Solid brick

Functioning

- The pad, which is covered with a special mortar, hardens in the drill hole, thus anchoring the plug securely in the damaged or over-sized drill hole.
- Wet the pad with water, wrap it around the plug and push it into the damaged drill hole.
- After about three minutes the special pad will harden and the fixture can then be attached.
- Use several pads for larger tolerances.
- The curing time for the first pad is approx. three minutes. Add an additional minute for each additional pad used.

Installation FixIt Pre-positioned



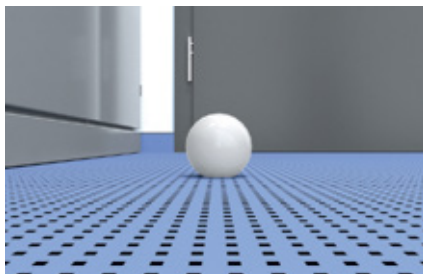
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Technical data

Repair pad FixIt			
Item	Item No.	Contents	Sales unit [pcs]
FixIt	092507	card with 10 FixIt pads	10

Doorstop TS

The installation-friendly doorstop



Doorstop

5

Applications

- Doorstop with flexible positioning

Characteristics



Advantages

- The extended plug shaft makes it possible to attach the doorstop directly, thus simplifying installation.
- The invisible fixing ensures visual appeal.
- The TS contains all the components

Building materials

- Concrete
- Floor screed

required for installation and is therefore a convenient complete solution.

- The doorstop is available in a range of colours to suit every floor covering and individual design wishes.

Functioning

- The doorstop TS is suitable for pre-positioned installation.
- When turning in the screw, the plug expands and anchors itself in the building material.
- The plug must be pushed into the drill hole up to the point where the plug shaft thickens.
- It can be removed by removing the doorstop, unscrewing the screw, and pulling out the plug.

For use with:

BS Brush

33

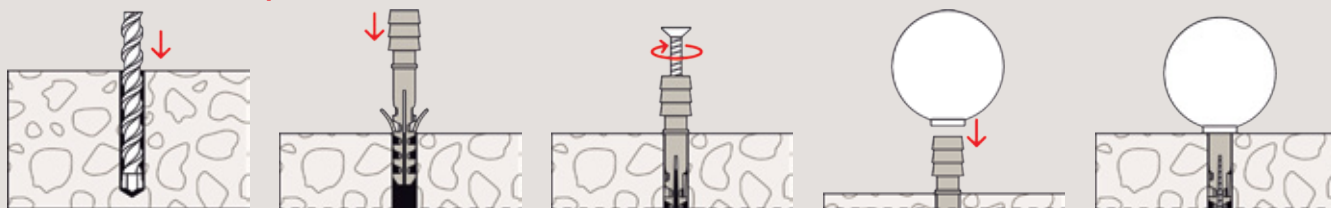


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Installation TS - Pre-positioned



Technical data

Doorstop TS



TS Assortment TS-SORT

Item	Item No.	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Colour	Contents	Sales unit [pcs]
TS 8 G	060535	8	50	grey	—	10
TS 8 W	060536	8	50	white	—	10
TS 8 S	060539	8	50	black	—	10
TS 8 BR	060540	8	50	brown	—	10
TS 8 BG	060551	8	50	beige	—	10
TS-SORT	060521	8	50	assortment	5 x grey, white, beige, black brown	1

5





6



6

Cavity fixings

Plasterboard fixing GK	82	
Nylon toggle DuoTec	84	
Plasterboard fixing DuoBlade	88	
Plasterboard fixing metal GKM	90	
Metal cavity fixing HM	92	
Spring-toggle KD, KDH, KM	96	

Plasterboard fixing GK

The fastest installation in gypsum plasterboard



Wall lamps



Pictures

Applications

- Pictures
- Lighting
- Electrical installations
- Fitting accessories
- Series installations

Advantages

- The included setting tool combines the drilling and fixing setting functions. It thus allows for a fast and simple installation.
- The sharp, self-tapping thread of the GK enables a secure, positive fit fixing. This achieves a high load-bearing capacity.
- The short fixing length means that only a small amount of space is required behind the board. As a result, the GK can also be used in the case of unknown board

thickness and cavity depth.

- The cross-drive recess in the head of the fixing means that the GK can also be screwed out like a screw without a setting tool.
- The GK can be used with the most wide-ranging screws, hooks and eye screws. This allows for a broad range of applications.

Certificates



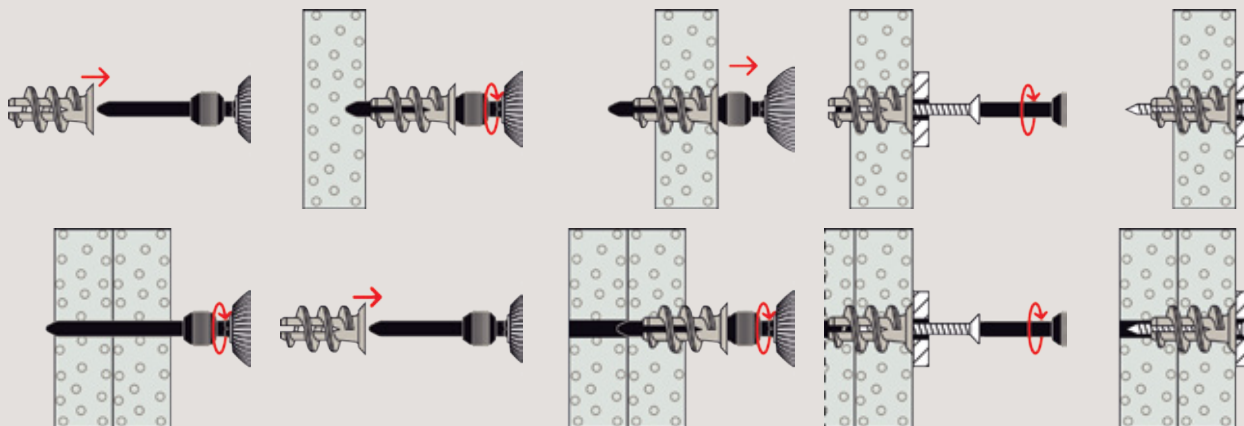
Building materials

- Gypsum plasterboard, single and double-planked

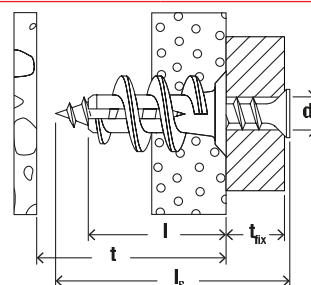
Functioning

- The gypsum plasterboard fixing GK is suitable for pre-positioned installation.
- The GK is screwed flush into the gypsum plasterboard using the setting tool provided. Overtightening the fixing should be avoided. Therefore, the installation torque should be limited when using a battery operated screwdriver.
- Adapted for wood, self-tapping and chip-board screws of 4.0 to 5.0 mm diameter.
- For board thicknesses greater than 15 mm, drill a hole first by using the setting tool.
- Not suitable for gypsum fibreboard and tiled plasterboard.

Installation GK - Pre-Positioned



6



Technical data in board material

Plasterboard fixing GK



GK

GK S with screw

GKW Installation tool

Item	Item No.	Anchor length l [mm]	Min. thickness to first supporting layer t [mm]	Max. fixture thick- ness t _{fix} [mm]	Screw d _s x l _s [mm]	Drive	Sales unit [pcs]
GK	052389 ¹⁾²⁾	22	25	—	4,0 - 5,0 x Ls	—	100
GK S	052390 ¹⁾³⁾	22	25	13	4,5 x 35	PZ2	50
GK W	52313	—	—	—	—	—	10

1) Including installation tool GKW.

2) Min. screw length = length of plug 22 mm + thickness of building component.

3) Supplied with plasterboard screw.

Loads

Plasterboard fixing GK

Recommended loads¹⁾ for a single anchor.

Type		GK
Chipboard screw diameter	[mm]	4.0 - 5.0
Recommended loads in the respective base material F _{rec} ²⁾		
Gypsum plasterboard	9.5 mm	[kN] 0.07
Gypsum plasterboard	12.5 mm	[kN] 0.08
Gypsum plasterboard	2 x 12.5 mm	[kN] 0.11

¹⁾ Required safety factors are considered. The given loads are valid for chipboard screws with the specified diameters.²⁾ Valid for tensile load, shear load and oblique load under any angle.

Nylon toggle DuoTec

Easy to install nylon toggle for high loads in all panel building materials



Kitchen hanging cabinets



Shelves

6

Applications

- Kitchen hanging cabinets
- Living room cabinets
- Shelves
- Wardrobes
- Handrails
- Pictures
- Mirrors
- Lamps
- Heavy hanging baskets

Advantages

- Flexible screw mount allows for the use of screws and hooks with different thread shapes.
- Glass fibre-reinforced plastics and a metal skeleton insert (fischer DuoTec 12) allow the toggle to handle heavy tensile and transverse loads in all panel building materials.
- Soft grey nylon contact surface distributes the load over the panel surface, thereby minimising weakening of the supporting building material.
- Standard drill hole diameters and short tilting element for easy installation in narrow cavities, including cavities with insulation.
- White flush sleeve with snap function allows the plug to be pre-installed quickly and securely in the drill hole.
- With scale on the grip strap (fischer DuoTec 12) for determining the required screw length (scale value + 20 mm).

Certificates



Building materials

Suitable for:

- Gypsum plasterboard
- Gypsum fibreboard
- Wooden panels, such as OSB boards, chipboard, MDF sheets
- Steel plates
- Plastic boards
- Hollow blocks made from concrete

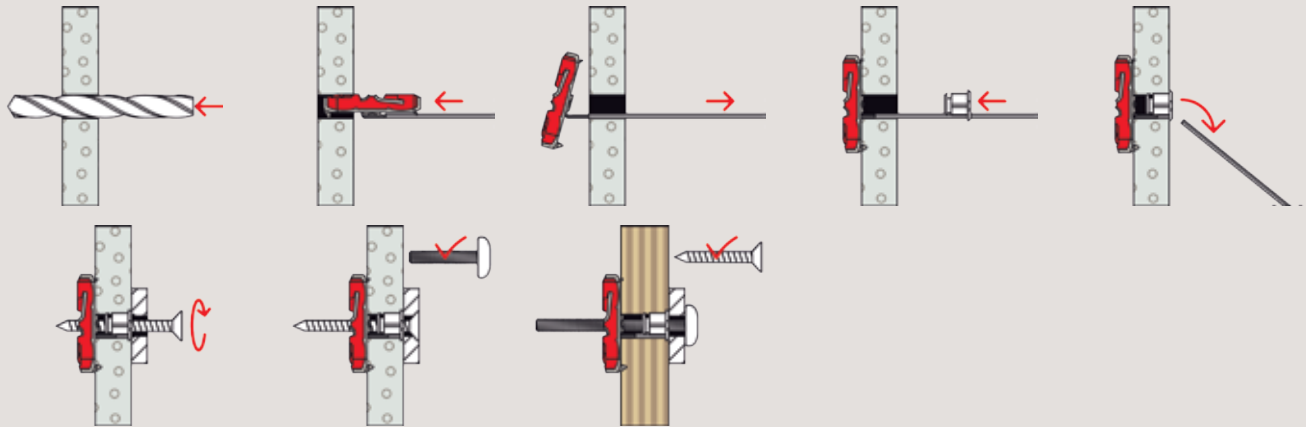
Also functioning in:

- Solid materials, such as concrete and wood

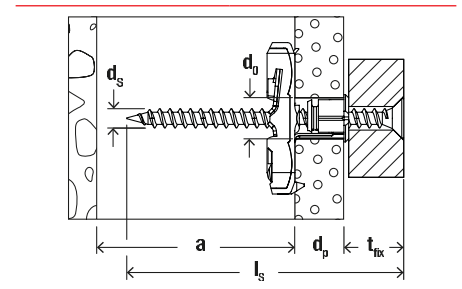
Functioning

- The fischer DuoTec is designed for pre-positioned installation.
- Simple installation with a standard diameter 10 or 12 mm drill bit.
- The short toggle element makes it suitable for narrow and even with mineral wool insulated cavities. Note the length of the toggle element!
- Functions like an expansion plug in solid building materials such as concrete or wood. Note, not with metric screws!
- Flexible screw insert allows for the use of wood, chipboard and metric screws and hooks.

Installation in board materials Prepositioned

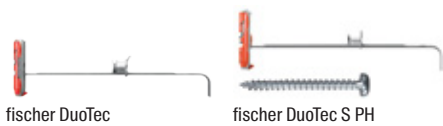


Installation in cavities



Technical data in board material

Nylon toggle fischer DuoTec



Item	Item No.	Drill hole diameter d_0 [mm]	Min. panel thickness d_p [mm]	Max. panel thickness d_p [mm]	Min. cavity depth a [mm]	Screw diameter d_s [mm]	Screw length l_s [mm]	Sales unit [pcs]
fischer DuoTec 10 S	537259 ¹⁾	10	12	55	40	5,0	60	25
fischer DuoTec 10	537258	10	12	55	40	—	$\geq d_p + t_{fix} + 20$	50
fischer DuoTec 10 S PH	539025 ²⁾	10	12	55	40	—	60	25
fischer DuoTec 12	542796	12	12	55	50	—	$\geq d_p + t_{fix} + 20$	10
fischer DuoTec 12 RH	542798 ⁴⁾	12	12	55	50	5,5	70	10
fischer DuoTec 12 S PH M	542797 ³⁾	12	12	55	50	—	70	10

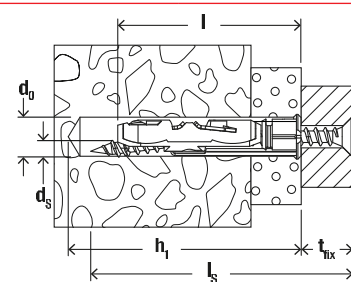
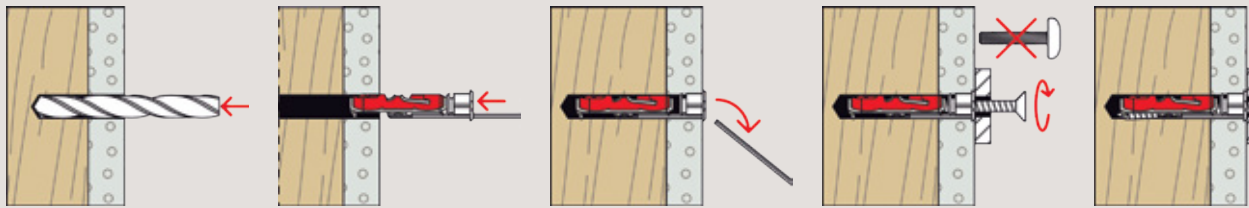
1) fischer DuoTec S - with chipboard screw countersunk head

2) fischer DuoTec S PH - with chipboard screw panhead

3) fischer DuoTec S PH M - with machine screw panhead

4) fischer DuoTec RH - with screw with round hook

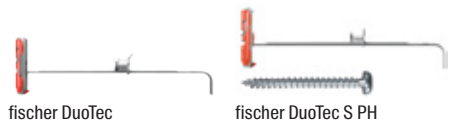
Installation for hits in solid building materials pre-positioned



6

Technical data in solid materials

Nylon toggle fischer DuoTec



Item	Item No.	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Screw diameter [mm]	Min. screw length l_s [mm]	Anchor length l [mm]	Max. fixture thickness t_{fix} [mm]	Sales unit [pcs]
fischer DuoTec 10 S	537259 ¹⁾	10	65	5,0	60	50	27	25
fischer DuoTec 10	537258	10	$l_s - t_{fix} + 10$	4,5 - 5,0	$t_{fix} + 55$	50	$l_s - 55$	50
fischer DuoTec 10 S PH	539025 ²⁾	10	65	5,0	60	50	27	25
fischer DuoTec 12	542796	12	$l_s - t_{fix} + 10$	5,0 - 6,0	$t_{fix} + 65$	60	$l_s - 65$	10
fischer DuoTec 12 RH	542798 ³⁾	12	75	5,5	55	60	—	10

- 1) fischer DuoTec S - with chipboard screw countersunk head
- 2) fischer DuoTec S PH - with chipboard screw panhead
- 3) fischer DuoTec RH - with screw with round hook

Loads

Nylon toggle DuoTec									
Recommended loads ^{1) 2)} for a single anchor.									
Type		DuoTec 10				DuoTec 12			
		Chipboard screws		Metrical screw	fischer Hook	Chipboard screws		Metrical screw	fischer Hook
Screw diameter	[mm]	4.5	5.0	5.0	5.0	5.0	6.0	6.0	5.5
Recommended loads in the respective base material $F_{rec}^{3)}$ for a span in the construction $b = 625$ mm									
Gypsum plasterboard	9.5 mm	[kN]	0.17	0.17	0.17	0.17	0.17	0.17	0.17
Gypsum plasterboard	12.5 mm	[kN]	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Gypsum plasterboard	2 x 12.5 mm	[kN]	0.43	0.43	0.43	0.30 ⁴⁾	0.43	0.43	0.43
Gypsum fibreboard	12.5 mm	[kN]	0.51	0.51	0.51	0.30 ⁴⁾	0.51	0.51	0.50 ⁴⁾
Chipboard	16 mm	[kN]	0.71	0.71	0.71	0.30 ⁴⁾	0.75	0.80	0.50 ⁴⁾
OSB board	18 mm	[kN]	0.75	0.75	0.75	0.30 ⁴⁾	0.75	1.30	0.50 ⁴⁾
Recommended loads in the respective base material $F_{rec}^{3)}$ for a span in the construction $b = 120$ mm									
Gypsum plasterboard	9.5 mm	[kN]	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Gypsum plasterboard	12.5 mm	[kN]	0.36	0.36	0.36	0.30 ⁴⁾	0.36	0.36	0.20
Gypsum plasterboard	2 x 12.5 mm	[kN]	0.59	0.59	0.59	0.30 ⁴⁾	0.70	0.80	0.50 ⁴⁾
Gypsum fibreboard	12.5 mm	[kN]	0.75	0.75	0.75	0.30 ⁴⁾	0.80	1.10	0.50 ⁴⁾
Chipboard	16 mm	[kN]	0.75	0.75	0.75	0.30 ⁴⁾	0.80	1.40	0.50 ⁴⁾
OSB board	18 mm	[kN]	0.75	0.75	0.75	0.30 ⁴⁾	0.80	1.50	0.50 ⁴⁾
Recommended loads in solid building materials $F_{rec}^{3)}$									
Concrete	$\geq C20/25$	[kN]	0.45	0.75	-	0.30 ⁴⁾	0.40	0.75	0.30
Wood		[kN]	0.30	0.75	-	0.30 ⁴⁾	0.20	0.65	0.30
Recommended loads in the respective base material $F_{rec}^{3)}$									
Hollow block of lightweight aggregate concrete 'Sepa Parpaing'	$f_b \geq 8$ N/mm ²	[kN]	-	-	-	-	0.65	1.00	0.50 ⁴⁾
Pre-stressed hollow-core concrete slabs		[kN]	-	-	-	-	1.00	1.40	0.50 ⁴⁾
Lightweight concrete hollow block Hbl acc. to EN 771-3	$f_b \geq 2$ N/mm ²	[kN]	-	-	-	-	0.90	1.00	0.50 ⁴⁾

¹⁾ Required safety factors are considered.

²⁾ The recommended loads are reference values and depending to the building material and the workmanship. The values are only valid for the given screw diameter.

³⁾ Valid for tensile load, shear load and oblique load under any angle.

⁴⁾ Bending of the hook is decisive. Only for tension load.

Plasterboard fixing DuoBlade

The self-drilling plasterboard plug for fast and easy installation



Smoke detectors



Mirrors

6

Applications

- Smoke detectors
- Mirrors
- Curtain rods
- Blinds
- Lamps
- Pictures

Advantages

- An innovative product of the fischer DuoLine with intelligent combinations for more power and more intelligence.
- The self-drilling fischer DUOBLADE allows fast and easy installation in gypsum plasterboard and gypsum fibreboard.
- The black metal tip guarantees simple and safe installation.
- High torque when anchor is installed for the feelgood-factor and an optimum feeling when setting.
- PZ 2 drive - same drive for plug and screw.

Certificates



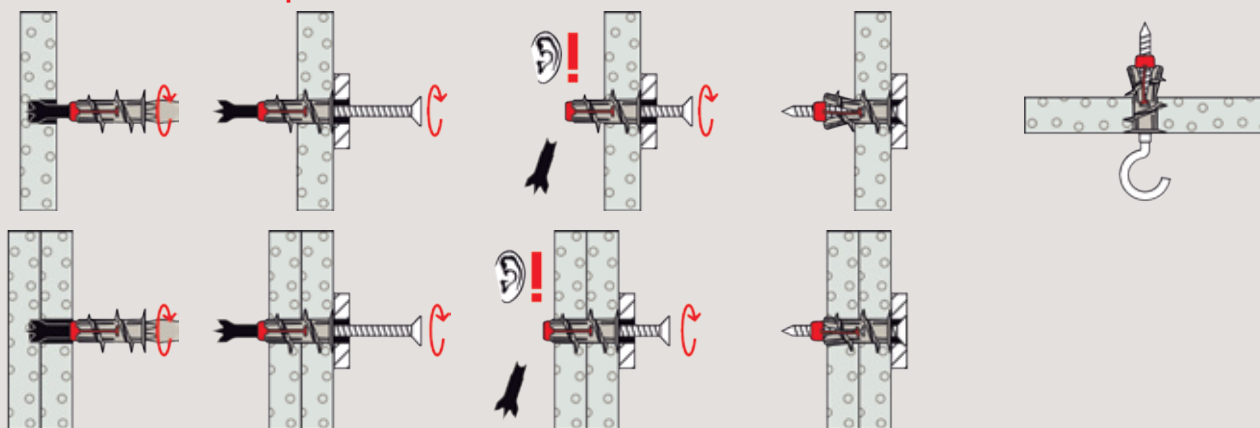
Building materials

- Gypsum plasterboard, single and double-planked
- Gypsum fibreboard
- Lightweight cement boards

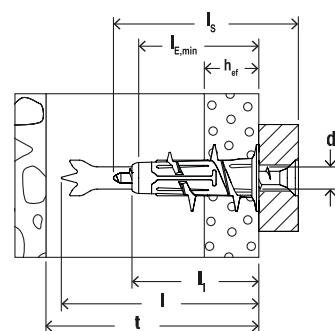
Functioning

- The fischer DuoBlade is suitable for pre-positioned installation.
- The metal tip for better heat-resistant and cutting characteristics. Especially in double-layered plasterboard.
- The fischer DuoBlade can be used with wood, metal and chipboard screws of Ø4.0 to Ø5.0 mm.
- In gypsum fibreboard, pre-drilling with a drill Ø 8mm is recommended.

Installation DuoBlade - Pre-positioned



6



Technical data in board material

Plasterboard fixing DuoBlade



DuoBlade

DuoBlade S

Item	Item No.	Min. thickness to first supporting layer t [mm]	Anchor length l [mm]	Anchor length without drill tip l_1 [mm]	Anchorage depth h_{ef} [mm]	Min. bolt penetration $l_{E,min}$ [mm]	Wood and chipboard screws $d_s / d_s \times l_s$ [mm]	Drive	Sales unit [pcs]
DuoBlade	545675	50	44	29	9,5 - 25	28	4 - 5	PZ2	50
DuoBlade S	545676 ¹⁾	50	44	29	9,5 - 25	28	4,5 x 40	PZ2	25

1) With chipboard screw countersunk head.

Loads

Plasterboard fixing DuoBlade

Recommended loads¹⁾ for a single anchor.

Type		DuoBlade
Chipboard screw diameter	[mm]	4.0 - 5.0
Recommended loads in the respective base material $F_{rec}^{2)}$		
Gypsum plasterboard	9.5 mm	[kN] 0.08
Gypsum plasterboard	12.5 mm	[kN] 0.10
Gypsum plasterboard (e.g. Knauf Diamant board or Rigips Die Harte)	12.5 mm	[kN] 0.18
Gypsum plasterboard	2 x 12.5 mm	[kN] 0.20
Lightweight cement board	12.5 mm	[kN] 0.08
Gypsum fibreboard	12.5 mm	[kN] 0.34

¹⁾ Required safety factors are considered. The given loads are valid for chipboard screws with the specified diameters.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

Plasterboard fixing metal GKM

The self-tapping metal fixing for gypsum plasterboard and gypsum fibreboard



Wall lamps



Speaker cabinets

6

Applications

- Pictures
- Lighting
- Electrical installations
- Fitting accessories

Advantages

- Due to its material properties, the GKM can be used in gypsum plasterboard and gypsum fibreboard, and can be used with the most wide-ranging screws, hooks and eye screws. This allows for a broad range of applications.
- The sharp, self-tapping thread enables a secure, positive fit fixing. This achieves a high load-bearing capacity.
- The cross-drive recess means that a standard screwdriver or bit can be used. No special setting tool is required.
- The short fixing length means that only a small amount of space is required behind the board. As a result, the GKM can also be used in the case of unknown board thickness and cavity depth.

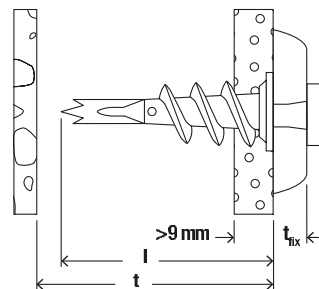
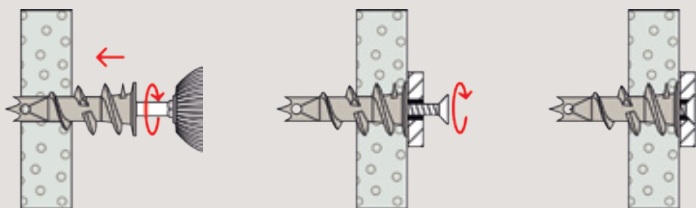
Building materials

- Gypsum fibreboard
- Gypsum plasterboard

Functioning

- The GKM is suitable for pre-positioned installation.
- The self-tapping metal fixing GKM taps itself into the plasterboard with a positive fit.
- Flush installation in the board building material. Overtightening the fixing should be avoided. Therefore, the installation torque should be limited when using a battery operated screwdriver.
- Adapted for wood, self-tapping and chip-board screws of 4.0 to 5.0 mm diameter.
- Pre-drill with a Ø 8 mm drill bit when using gypsum fibreboard and double-planked gypsum plasterboard.
- Not suitable for tiled plasterboard.

Installation GKM - Pre-Positioned



6

Technical data

Plasterboard fixing metal GKM



GKM

Item	Item No.	Anchor length	Min. thickness to first supporting layer	Max. fixture thickness	Screw	Drive	Sales unit
		l [mm]	t [mm]	t _{fix} [mm]			
GKM	024556	31	35	—	4,0 - 5,0 x Ls	—	100
GKM 12	040432 ¹⁾	31	35	12	4,5 x 35	PZ2	100
GKM 27	040434 ¹⁾	31	35	27	4,5 x 50	PZ2	100

¹⁾ Supplied with plasterboard screws countersunk head.

Loads

Plasterboard fixing metal GKM

Recommended loads¹⁾ for a single anchor.

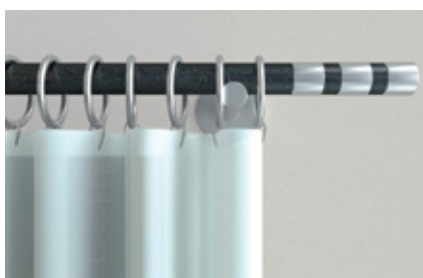
Type	GKM	
Chipboard screw diameter	[mm]	4.0 - 5.0
Recommended loads in the respective base material F _{rec} ²⁾		
Gypsum plasterboard	9.5 mm	[kN] 0.07
Gypsum plasterboard	12.5 mm	[kN] 0.08
Gypsum plasterboard	2 x 12.5 mm	[kN] 0.11

¹⁾ Required safety factors are considered. The given loads are valid for chipboard screws with the specified diameters.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

Metal cavity fixing HM

The versatile metal cavity fixing with metric screws



Curtain rails



Shelves

6

Applications

- Pictures
- Lighting
- Light shelves
- Towel rails
- Mirror cabinets
- Curtain rails
- Sub-structures

Advantages

- Due to the extensive range, the HM is suitable for board building materials with a thickness of 3-50 mm and thus suitable for a number of different applications.
- The metric internal thread allows the attachment to be removed and refitted several times, thus offering the best possible flexibility.
- The HM's expanding arms ensure a large supporting surface, thus allowing a high load-bearing capacity.
- The claws around the edge of the fixing penetrate the board building material, preventing the fixing from rotating, thus ensuring a secure installation.

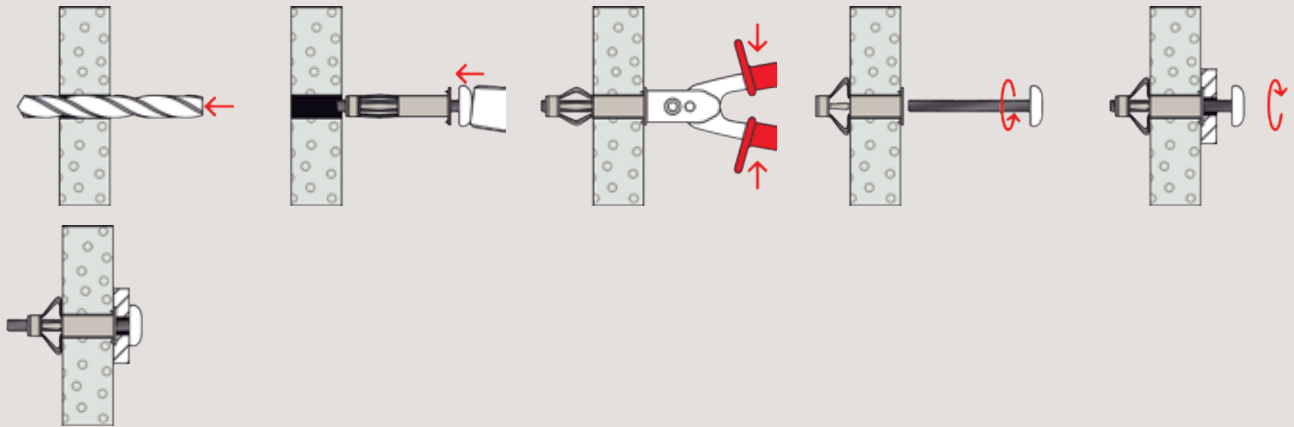
Building materials

- Gypsum plasterboard and gypsum fibreboards
- Cavity floor slabs
- Light building boards made of wood wool
- Chipboard
- Plywood boards

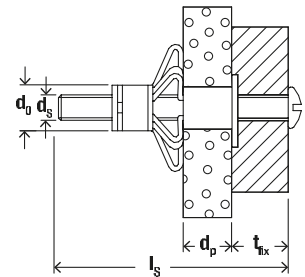
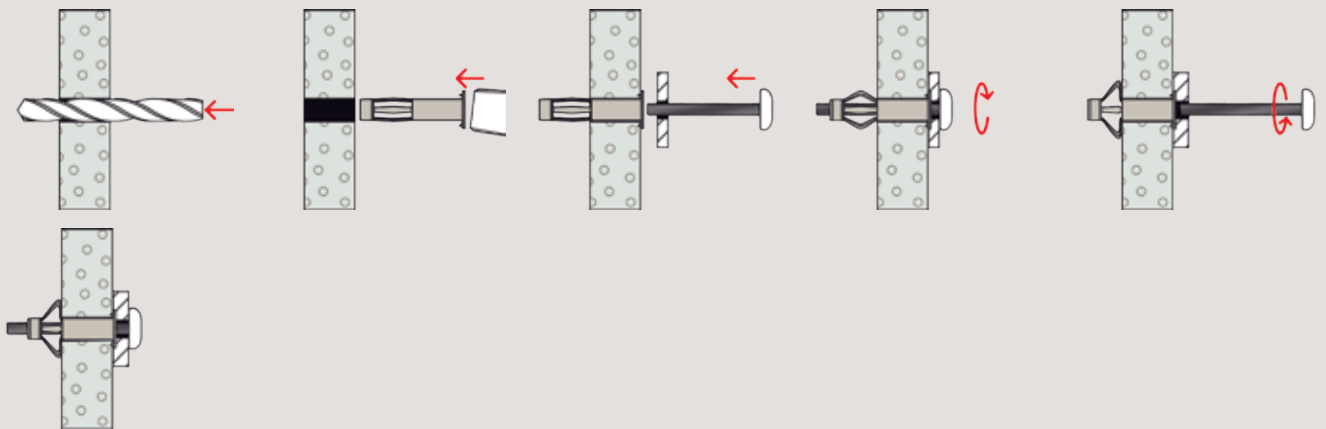
Functioning

- The metal cavity fixing HM is suitable for pre-positioned installation.
- The fixing should be selected based on the thickness of the board building material, to allow the very best expansion in the cavity.
- During installation, the expanding arms swing open and press onto the reverse side of the board.
- The HM can be installed using installation pliers. If using a battery operated screwdriver or screwdriver for installation, the pre-assembled screws must be removed first. When screwing in and expanding the fixing, the attachment, or a max. 6 mm plate, needs to be used as a turning stop.

Installation HM - Pre-Positioned



Installation HM



Technical data in board material

Metal cavity fixing HM



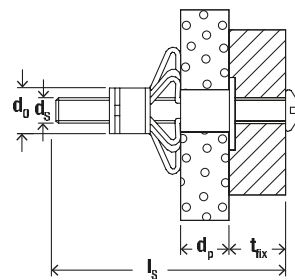
HM-S with metric screw

HM-SS with hexagon headed screw

HM-H with angle hook

Item	Item No.	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Anchor length l [mm]	Screw $d_s \times l_s$ [mm]	Panel thickness d_p [mm]	Fixture thickness t_{fix} [mm]	Drive	Sales unit [pcs]
HM 4 x 32 S	519769	8	40	32	M 4 x 40	3 - 13	≤ 15 - 25	PH2	50
HM 4 x 45 S	519770	8	52	45	M 4 x 52	16 - 23	≤ 12 - 21	PH2	50
HM 4 x 60 S	519771	8	65	60	M 4 x 65	31 - 40	≤ 12 - 21	PH2	50

1) with hexagon headed screw, assembly only by using the professional installation tool HM Z 1



Technical data in board material

Metal cavity fixing HM



HM-S with metric screw

HM-SS with hexagon headed screw

HM-H with angle hook

Item	Item No.	Drill hole diameter d_0 [mm]	Min. drill hole depth h_1 [mm]	Anchor length l [mm]	Screw $d_s \times l_s$ [mm]	Panel thick-ness d_p [mm]	Fixture thick-ness t_{fix} [mm]	Drive	Sales unit [pcs]
HM 5 x 37 S	519772	10	45	37	M 5 x 45	6 - 15	≤ 8 - 17	PH2	50
HM 5 x 52 S	519774	10	58	52	M 5 x 58	7 - 21	≤ 10 - 24	PH2	50
HM 5 x 65 S	519775	10	71	65	M 5 x 71	20 - 34	≤ 12 - 26	PH2	50
HM 6 x 37 S	519777	12	45	37	M 6 x 45	6 - 15	≤ 12 - 21	PH3	50
HM 6 x 52 S	519778	12	58	52	M 6 x 58	7 - 21	≤ 14 - 28	PH3	50
HM 6 x 65 S	519782	12	71	65	M 6 x 71	17 - 34	≤ 13 - 30	PH3	50
HM 6 x 80 S	519779	12	88	80	M 6 x 88	32 - 50	≤ 16 - 34	PH3	50
HM 8 x 54 SS	519783 ¹⁾	12	60	54	M 8 x 60	7 - 21	≤ 16 - 30	SW13	50
HM 4 x 32 H	519780	8	45	32	—	3 - 13	—	—	50
HM 5 x 65 H	519781	10	71	65	—	20 - 34	—	—	50

¹⁾ with hexagon headed screw, assembly only by using the professional installation tool HM Z 1

Accessories

Installation pliers HMZ



HM Z 1 - the professional installation tool

HM Z 2 - the DIY installation tool

HM Z 3

Item	Item No.	Adapted for	Sales unit [pcs]
HM Z 1	062320	HM 4 - HM 8	1
HM Z 2	062321	HM 4 - HM 6	1
HM Z 3	539723	HM 4 - HM 6	1

Loads

Metal cavity fixing HM											
Recommended loads ¹⁾ for a single anchor.											
Type			HM 4 x 32 S	HM 4 x 46 S	HM 5 x 37 S	HM 5 x 52 S	HM 5 x 65 S	HM 6 x 37 S	HM 6 x 52 S	HM 6 x 65 S	HM 8 x 55 SS
Thread size			M 4	M 4	M 5	M 5	M 5	M 6	M	M 6	M 8
Recommended loads in the respective base material F_{rec} ²⁾											
Gypsum plasterboard	9.5 mm	[kN]	0.15	0.15	0.15	0.15	-	0.15	-	-	-
Gypsum plasterboard	12.5 mm	[kN]	0.20	0.20	0.20	0.20	-	0.20	0.20	-	0.20
Gypsum plasterboard	19 mm (2 x 9.5 mm)	[kN]	-	-	-	0.25	-	-	0.25	-	0.25
Gypsum plasterboard	25 mm (2 x 12.5 mm)	[kN]	-	-	-	-	0.30	-	-	0.30	-
Chipboard	10 mm	[kN]	0.25	0.25	0.25	0.25	-	0.25	0.25	-	0.25
Chipboard	13 mm	[kN]	0.25	0.25	0.25	0.25	-	0.25	0.25	-	0.25
Chipboard	28 mm	[kN]	-	-	-	-	0.50	-	-	0.50	-
Plywood	4 mm	[kN]	0.10	-	-	-	-	-	-	-	-
Hardboard	3 mm	[kN]	0.10	-	-	-	-	-	-	-	-
Wood wool slab	16 mm	[kN]	-	0.05	-	0.05	-	-	0.05	-	0.05
Wood wool slab	25 mm	[kN]	-	-	-	-	0.05	-	-	0.05	-
Fibre cement board	8 mm	[kN]	0.25	0.25	0.25	0.25	-	0.25	-	-	-
Gypsum fibreboard	10 mm	[kN]	0.25	0.25	0.25	0.25	-	0.25	0.25	-	0.25
Gypsum fibreboard	15 mm	[kN]	-	0.25	0.25	0.25	-	0.25	0.25	-	0.25

¹⁾ Required safety factors are considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

Spring-toggle KD, KDH, KM

The cavity fixing for different board thicknesses and large usage lengths



Ceiling lamps



Wash basins

6

Applications

- Pictures
- Lighting
- Light shelves
- Towel rails
- Mirror cabinets
- Light cabinets
- Wash basins and urinals (KM 10)
- Cable and pipe clips

Advantages

- Universal fixing for fastenings in a wide range of drywall and hollow wall materials.
- When the metal crosspiece is pushed through the drill hole, pull it firmly against the inner wall cavity by tugging the plastic pull ring on the outer wall.
- Afterwards cut the plastic legs off and fasten the fixture with e.g. a screw or screw in a hook or an eyebolt according to your demands.
- Suitable for pre-positioned installation.

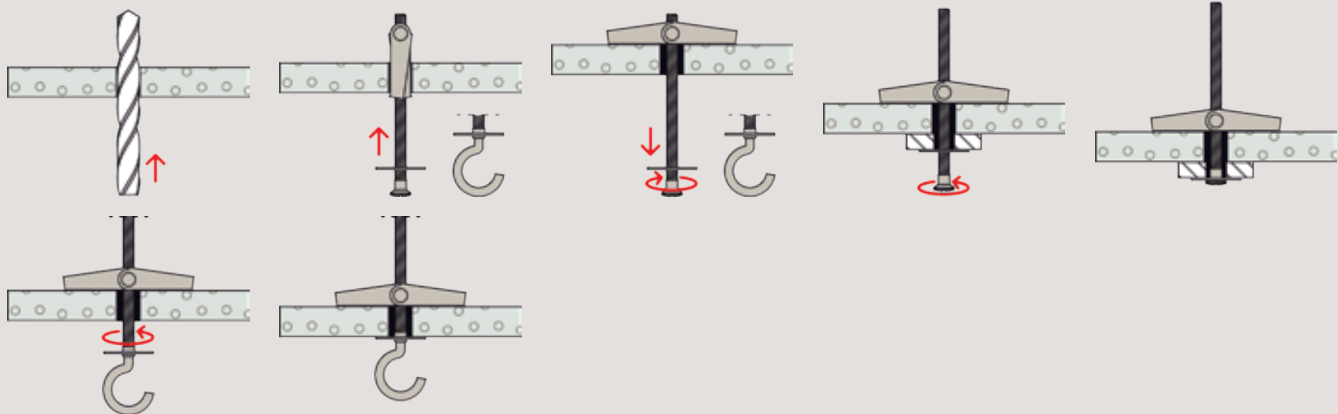
Building materials

- Gypsum plasterboard and gypsum fibreboards
- Cavity floor slabs made from bricks and concrete
- Chipboard
- Plywood boards

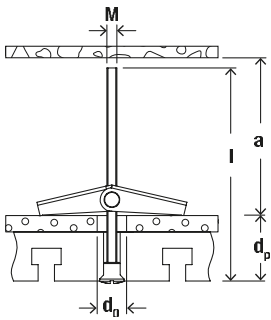
Functioning

- The gravity and spring toggle are suitable for pre-positioned installation.
- When placed in the drill hole, the bearing elements of the gravity and spring toggles independently swing open behind the board.
- The KM 10 is specially suited to fixing wash basins and urinals into installation and cavity walls.
- No special installation tool required. For a fast and convenient installation.

Installation K, KD - Pre-Positioned

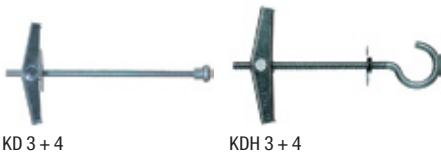


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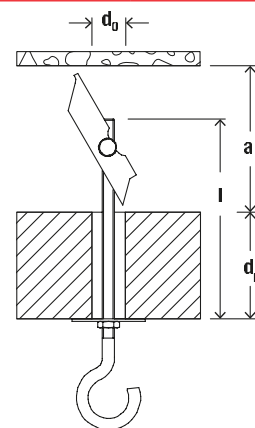


Technical data

Spring toggle KD 3+4, KDH 3+4

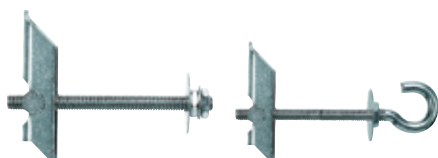


Item	Item No.	Drill hole diameter d_0 [mm]	Max. panel thickness d_p [mm]	Min. cavity depth a [mm]	Anchor length l [mm]	Thread $\emptyset \times$ length [mm]	Sales unit [pcs]
KD 3	080181	12	65	27	95	M 3 x 90	50
KDH 3	080182	12	51	27	105	M 3 x 80	25
KD 3 B	080192	12	65	27	95	M 3 x 90	10
KD 4	080183	14	69	34	105	M 4 x 100	25
KDH 4	080184	14	35	34	95	M 4 x 70	25
KD 4 B	080193	14	69	34	105	M 4 x 100	10



Technical data

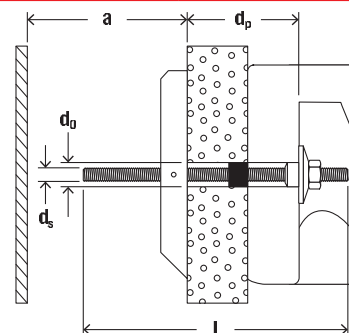
Gravity toggle KD 5+6+8, KDH 5+6+8



KD 5 + 6 + 8

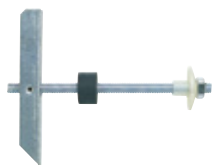
KDH 5 + 6 + 8

Item	Item No.	Drill hole diameter d_0 [mm]	Max. panel thickness d_p [mm]	Min. cavity depth a [mm]	Anchor length l [mm]	Thread $\varnothing \times$ length [mm]	Sales unit [pcs]
KD 5	080187	16	63	70	100	M 5 x 100	25
KD 6	080185	16	63	70	100	M 6 x 100	25
KD 8	080178	20	55	75	100	M 8 x 100	20
KDH 5	080188	16	60	70	130	M 5 x 90	20
KDH 6	080186	16	60	70	130	M 6 x 100	20
KDH 8	080179	20	55	75	130	M 8 x 100	20



Technical data

Gravity toggle KM 10



KM 10

Item	Item No.	Drill hole diameter d_0 [mm]	Max. panel thickness d_p [mm]	Min. cavity depth a [mm]	Anchor length l [mm]	Screw $d_s \times l_s$ [mm]	Sales unit [pcs]
KM 10	050326	30	90	140	180	M 10 x 180	25

Loads

Toggle fixing KD							
Recommended loads ¹⁾ for a single anchor.							
Type			KD 3	KD 4	KD 5	KD 6	KD 8
Thread size			M 3	M 4	M 5	M 6	M 8
Recommended loads in the respective base material F_{rec} ²⁾							
Gypsum plasterboard	12.5 mm	[kN]	0.15	0.15	0.15	0.15	0.18
OSB board	≥ 15 mm	[kN]	0.34	0.58	0.85	0.85	0.89

¹⁾ Required safety factors are considered.

²⁾ Valid for axial tensile load.

³⁾ Bending of the hook is decisive. Only for tension load.

Loads

Toggle fixing KDH							
Recommended loads ¹⁾ for a single anchor.							
Type			KDH 3	KDH 4	KDH 5	KDH 6	KDH 8
Thread size			M 3	M 4	M 5	M 6	M 8
Recommended loads in the respective base material F_{rec} ²⁾							
Gypsum plasterboard	12.5 mm	[kN]	0.07 ³⁾	0.13 ³⁾	0.15	0.15	0.18
OSB board	≥ 15 mm	[kN]	0.07 ³⁾	0.13 ³⁾	0.30 ³⁾	0.45 ³⁾	0.89

¹⁾ Required safety factors are considered.

²⁾ Valid for axial tensile load.

³⁾ Bending of the hook is decisive. Only for tension load.

Loads

Toggle fixing KM 10 and K 54		
Mean ultimate loads.		
Type		KM 10
Screw diameter		M 10
Mean ultimate loads F_u ¹⁾²⁾³⁾	[kN]	13.0

¹⁾ Upon these failure loads an appropriate safety factor has to be considered.

²⁾ Valid for tensile load, shear load and oblique load under any angle.

³⁾ If the failure of the base material is not possible.



7

Sanitary fixings

Sanitary Fixing WB2 102 

Sanitary Fixing WB 5N 104 

Sanitary Fixing WB 9N 106 

Sanitary Fixing WB2

Vertical Fixings for Floor-Mounted Toilets and Bidets with vertical Holes



Free-standing toilets



Bidets

7

Applications

- Free-standing toilets
- Bidets

Advantages

- A pronounced rim prevents contact between the screw and the ceramics, thus ensuring nothing gets damaged during fixing.
- Corrosion resistant materials.

Characteristics



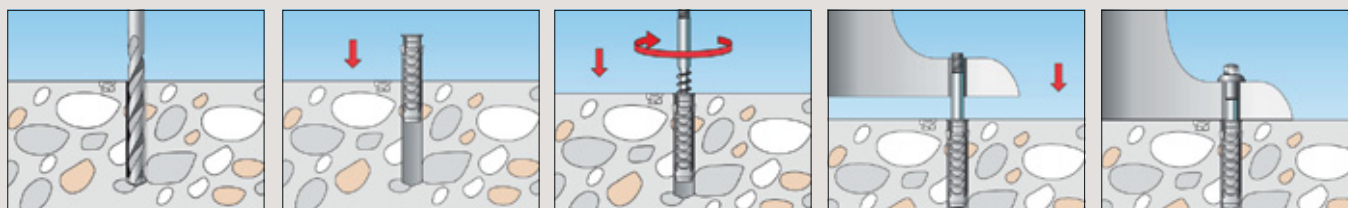
Building materials

- Concrete
- Natural stone
- Solid brick
- Hollow brick

Functioning

- WB2 is suitable for pre-positioned installation of toilets and bidets with vertical holes.

Installation for WB2 - Pre-positioned



For use with:

BS Brush

33



AB G

33



Technical data

Sanitary Fixing WB2



WB2

Item	Item No.	Sales diameter (mm)	Drill hole depth (mm)	Ceramic hole diameter (mm)	Ceramic thickness (mm)	Contents	Sales unit [pcs]
WB2 stainless steel screw	501004	8	55	8.5 12	25	4 x SX 8 plugs, 4 x 7x32 stainless steel screws, 4 x blind brass nickel-plated nuts, 4 x nylon bushes in one polybag	50

Sanitary Fixing WB 5N

Lateral fixing for floor-mounted toilets and bidets, with lateral holes



Free-standing toilets



Bidets

7

Applications

- Floor mounted toilets
- Bidets with lateral holes

Advantages

- The WBSN nylon brush prevents the direct contact between ceramic and metal screw.
- Corrosion resistant materials
- The WBSN bracket, with Pre-drilled rows of holes, allows for adjustable installation in two directions.

Characteristics



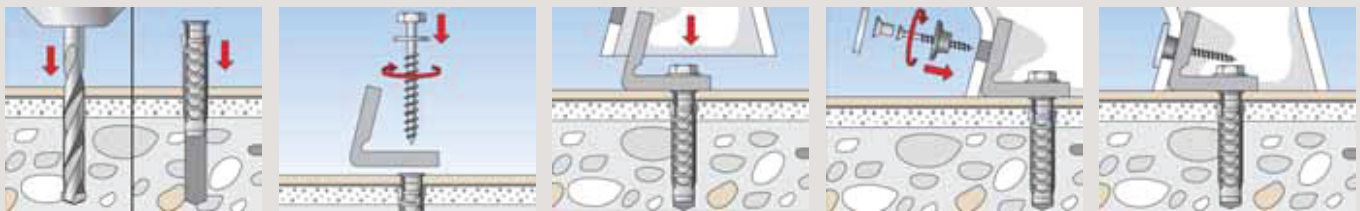
Building materials

- Concrete
- Natural stone
- Solid brick
- Hollow brick

Functioning

- The WBSN assembly bracket is positioned using the slotted hole. The ceramic can then be fixed to the bracket via rows of holes. These allow the tolerance that may occur during the ceramic manufacturing process.

Installation for WC fixing WB 5N - Pre-positioned



For use with:

BS Brush

33



AB G

33



Technical data

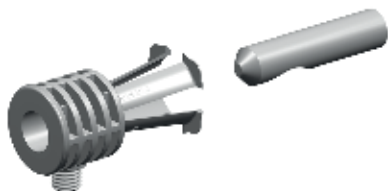
WC fixing WB 5N



	Art-No.	Contents	Sales unit [pcs]
Item			
WB5N	018652	2 x S plugs, UX 10, 2 x screws 7x65 zinc-plated, 2 nylon angles, 2 x washers 8mm, 2 x screws A2 stainless steel, 2 x flanged sleeves, 2 x chrome cover caps	50

Sanitary Fixing WB 9N

Hidden fixing system for wall-hung toilets and bidets



Top fixation



Bottom fixation



Lateral fixation

7

Advantages

- Hidden fixation
- No contact between ceramic and metal part
- Complete system for quick and easy installation
- The WB9N nylon device can be pre-installed either in the ceramic production plant or in the building site by the plumber

Applications

- Wall hung toilets and bidets
- Solutions for Top, Bottom and Lateral installation
- Solutions either for ceramic slot with hole or recess

Functioning

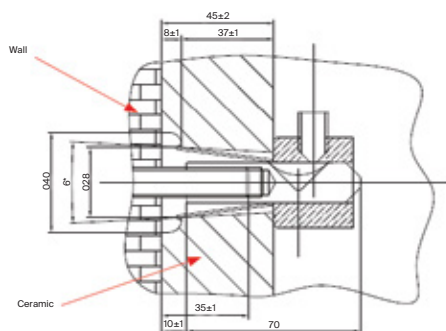
- Screw the 2 metal cylinders on the wall M12 threaded bars. Orient cylinder recess according to bottom, top or lateral fixation.
- Install the WB9N on the ceramic.
- Put the ceramic on the wall cylinders
- Tighten the WB9N screw. The screw must be engaged with the cylinder recess

Characteristics



Building materials

- Concrete
- Solid sand-lime brick
- Natural stone with dense structure
- Solid brick made from lightweight concrete
- Solid brick.



For use with:

BS Brush

33



AB G

33



Technical data

WC Sanitary Fixing WB 9N








	Art-No.	Contents	Sales unit [pcs]
Item			
WB9N	4013	2 x Nylon Bodies, 2 x M12 Threaded Sockets, 2 x Caps (White), 1 x Allen Key.	50



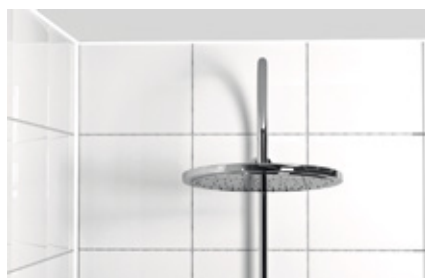
8

PU foams, Sealants, Repair mortar & Aerosol

Antifungal General Purpose - Silicone DMS	110	
General purpose quick sealant GP-SI	111	
Repair mortar DEC	113	
PU Foam Spray (B3)	114	
Zinc Alu Spray	115	

Multi-silicone DMS

The silicone sealant with an acetate base for internal and external applications



Joints in sanitary areas



Sealings in the kitchen

Applications

- Bathrooms, showers and toilets
- Connection joints to sinks
- Expansion joints between tiles
- Connection joints in the kitchen
- Joints between timber and tiles
- Seal welds for display cabinets and glass blocks

Advantages

- Thanks to the practical elasticity of 20%, DMS is ideally suited to connection joints with expansion. This guarantees long-lasting jointing.
- The fungicidal properties ensure a clean look over the long term.
- The very good hold on smooth surfaces

- prevents damp from forming in the substrate and guarantees reliable functioning.
- The good resistance to UV, weathering and ageing means that DMS can be used both indoors and outdoors, and offers a high level of security over the long term.

Building materials

- Stainless steel
- Anodised layer
- Epoxy
- Tiles
- Glazed surfaces
- Glass
- H-PVC
- Ceramics
- Painted wood
- Polyester

Certificates

- EN 15651 - Part 1: F EXT-INT-CC
- EN 15651 - Part 3: S

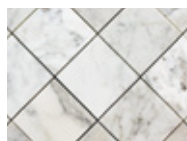
Functioning

- Chemical base: 1-component silicone acetate
- Permanently elastic
- With fungicide
- Skin formation time: approx. 10 to 15 minutes
- Processing temperature: +5 °C to +40 °C
- Temperature resistance: -40 °C to +150 °C
- Shore-A hardness 25
- 100% Modulus 0.4 N/mm²
- Elongation at break 450%
- Very good resistance to weather, ageing and UV
- Not paintable

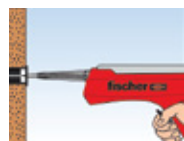
Method of Application



Clean surface



Prepare surface



Fill sealant in gap

Technical data



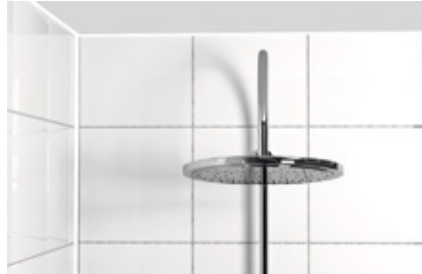
Multi-silicone DMS

Applicator gun KPM1

Item	Item No.	Colour	Contents [ml]	Sales unit [pcs]
DMS TP (GB/E)	040385	transparent	280	24
DMS W (GB/E)	040386	white	280	24
DMS GR (GB/E)	040389	grey	280	24
DMS SW (GB/E)	504413	black	280	24
KPM1 applicator gun	53115	-	-	1

General purpose quick silicone sealant GP-SI

The silicone sealant with an acetate base for internal and external applications



Joints in sanitary areas



Wash basins

Applications

- For interior and exterior movement and connection joints
- Aluminium / glass and standard glazing
- Joints in sinks, showers and toilets
- Expansion joints between floor and wall tiles
- Joints around enamel and plastic showers and bath tubs
- Connection joints between timber and tiles
- Connection joints in bathroom and kitchen
- Seal welds for display cabinets and glass blocks
- Glazing wood and aluminium windows
- Gasketing applications, industrial applications, sealing and dust proofing
- Usage in kitchens, chimneys where the temperature does not cross +180 °C continuously
- Must not be used on mirrors, and sensitive metals like copper, brazen, natural stone, concrete and brick
- Do not apply to surfaces that require painting
- Not suitable for food contact applications, bitumen, neoprene
- For further information see technical data sheet.

Advantages

- Thanks to the practical elasticity, GP-SI is ideally suited to connection joints with expansion. This guarantees long-lasting jointing.
- The fungicidal properties ensure a clean look over the long term.
- The very good hold on smooth surfaces prevents damp from forming in the substrate and guarantees reliable functioning.
- The good resistance to UV, weathering and ageing means that GP-SI can be used both indoors and outdoors, and offers a high level of security over the long term.

8

Building materials

- Stainless steel
- Anodised layer
- Epoxy
- Tiles
- Glazed surfaces
- Glass
- u-PVC
- Ceramics
- Painted wood
- Polyester

Functioning

- Chemical base: 1-component silicone acetate
- Permanently elastic
- With fungicide
- Processing temperature +5 °C to +40 °C
- Skin formation time approx. 5 minutes
- Tack free approx. 15 minutes
- Cures approx. 2.5 mm per day
- Shore A: 20 - 25
- Young modulus 0.22 N/mm²
- Elastic recovery approx. 85%
- Tensile strength 1.25 N/mm²
- Elongation at break 550% (ISO 37)
- Temperature resistance -30 °C to +180 °C
- Very good resistance to weather, age and UV
- Not paintable

Method of Application

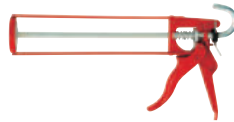


Clean surface

Prepare surface/Fill

sealant in gap

Technical data



GP-SI

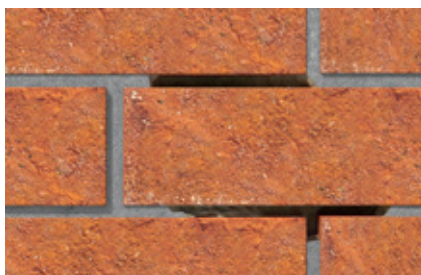
Applicator gun KPM1

Item	Item No.	Colour	Contents [ml]	Sales unit [pcs]
GP Silicone Sealant WH	569746	WHITE	280	24
GP Silicone Sealant TR	569747	TRANSPARENT	280	24
GP Silicone Sealant GR	569748	GREY	280	24
GP Silicone Sealant BG	569749	BEIGE	280	24
GP Silicone Sealant BL	569750	BLACK	280	24
KPM1 applicator gun	53115	-	-	1

8

Repair mortar DEC

The ready-to-use, extrudable joint mortar for the long-lasting closing of masonry joints



Masonry joints



Wall breakthrough

Applications

- Repairing masonry joints
- Closing masonry cracks
- Repairing chipped edges
- Closing drill holes in facing masonry during repair work
- General repair work (e.g. drill holes with cracked edges)
- For a better reusability, to close opened cartridges with adhesive tape

Building materials

- Concrete
- Pumice
- Fibre cement
- Gypsum
- Wooden materials
- Sand-lime brick
- Ceramics
- Clinker brick
- Masonry
- Aerated concrete
- Plaster
- Cement
- Brick

Advantages

- The ready-to-use, sprayable joint mortar means that there is no need to add water or carry out time-consuming pre-mixing work. It enables clean, purposeful work. This means that you avoid dirtying surrounding areas and wasting material.
- Good adhesion even on slightly damp

- substrates practically allows for all-weather work and prevents forced interruptions.
- The structure of the high-quality water-based polymer has been perfectly designed with the visual appearance of the mortar in mind. This ensures a discreet joint and perfect appearance.

Functioning

- Chemical base: 1C polymer dispersion
- Plastic
- Consistency: Firm
- Practically odour-free
- Skin formation time: Approx. 10 minutes.
- Processing temperature: +5 °C to +40 °C (not below +5 °C)
- Temperature resistance up to -30 °C (fully cured)
- Weather-proof after approx. 24 hours.
- Very good resistance to UV, weather and ageing
- Paintable
- Frost-protected in the cartridge

- Free of silicone, MDI and solvents
- Not recommended for caulking guns with a transmission ratio of less than 10:1 (e.g. KPM1)
- Selection table for substrates - refer to page 570

Technical data



Repair mortar DEC

Applicator gun KPM1

Repair mortar DEC					
Item	Item No.	Colour	Contents [ml]	Contents per plastic bag [pcs]	Sales unit [pcs]
DEC CG (DE/EN)	534474	cement grey	310	—	12
V-Nozzle Express Cement	524315	—	—	5	1
KPM1 applicator gun	53115	—	—	—	—

PU Foam Spray (B3)

The B3 High-Quality PU Foam Spray



Window connection joints



Sealing concrete manhole rings

8

Applications

- Bonding and sealing manhole rings
- Insulating and filling in roofing work and dry construction
- Insulating and filling window connection joints, around window sills and shutter boxes
- Insulating and filling finished elements, wall connections and wall penetrations

Building materials

Bonds to all standard building materials such as:

- Concrete
- Anodised layer
- Gypsum plasterboard
- Wood
- Sand-lime brick
- Plastics (not on PE, PP, Teflon, silicone)
- Masonry
- Metals with priming coat
- Plaster

Advantages

- The reclosable fix adapter allows for immediate use and for the reuse of opened cans, thus guaranteeing long-lasting functionality.
- The used solid valve prevents adhesion when being stored horizontally and premature gas loss.
- The rapid installation foam has been

Certificates

- General test certificate from building authorities P-NDS04-136 for B2
- Proven joint soundproofing: R(ST,w)=61 (-1; -3) dB in line with ISO EN 717-1
- Test for watertightness for the adhesion of manhole rings

approved as watertight by an external inspection and is thus suitable for use in wet conditions. It fulfils the requirements of a well foam.

- The ergonomic handle sits perfectly in the hand and allows for easy use.

Functioning

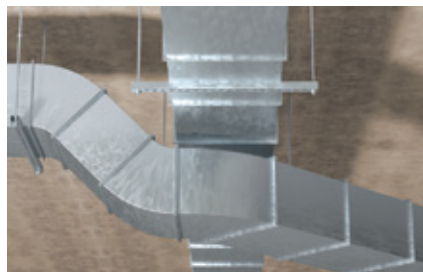
- 1-component PU foam
- Building material class B3
- Processing temperature environment: +5 °C to +35 °C (can temperature: +5 °C to +25 °C)
- Non-tacky after approx. 20 minutes
- Can be cut after approx. 40 minutes
- Cures within 5 to 8 hours
- Temperature resistant from -40 °C to +90 °C
- Layer thicknesses > 50 mm: foam in several layers and then dampen.
- Fresh foam stains can be removed immediately with fischer PU cleaner.

Technical data

PU Foam B3						
Item	Item No.	Content per can [ml]	Max. foam yield (free foaming) [l]	Adapter system	Colour	Sales unit [pcs]
fischer PUP 1 / 750 B3	098011	750	41	Standard adapter	beige	12

Zinc-alu spray FTC-ZA

Ideal for repairing damaged zinc coatings using colour-matching corrosion protection.



Ventilation systems



Ladders

Applications

- For post-galvanising and repairing damaged areas of galvanised parts, drilling and cutting points and welded joints
- Repairing damaged zinc coatings
- Climate control and ventilation technology
- Guard rails
- Metal constructions
- Sheet metal coverings

Building materials

- All iron and steel surfaces
- Hot-dip galvanised surfaces following drilling, ironwork or welding
- Non-ferrous heavy metal

Advantages

- Zinc-alu spray represents a subtle repair to damaged hot-dip galvanised areas thanks to its colour matching with the hot-dip galvanisation.
- Thanks to the excellent holding properties on blank metal, it guarantees a

- lasting connection to the base material.
- The fast-drying Zinc-alu spray guarantees good, weatherproof corrosion protection and, as such, is suitable for use both indoors and out.

Functioning

- Silver-grey colour (similar to RAL 9006) with high gloss level
- Shake can well for approx. 2 minutes
- Apply at a distance of 25–30 cm in a cross coat
- Surface dust-dry after just approx. 8 minutes
- Touch-dry after 20–25 minutes
- Fully hardened within 24 hours
- Smooth, non-porous film
- High abrasion resistance
- Long-term heat resistance up to approx. 200 °C (briefly up to 300 °C)
- Ideal processing temperature of 16 °C to 25 °C

Technical data

Zinc-alu spray FTC-ZA			
Item	Item No.	Contents [ml]	Sales unit [pcs]
FTC-ZA (EN/FR/ES/PT)	509241	400	12



9

9

Adhesives

CRAFT SB Adhesive

118



Crystal MS Adhesive

119



CRAFT SB

Strong one-component mounting adhesive



Bonding ceramic tiles



Skirting plastics

9

Applications

- Fixing mirrors to walls
- Bonding decorative elements made of wood, gypsum, cork, chipboard, metal, stones, foamed polystyrene
- Bonding skirting-boards, floor panels, boards, ceramic tiles

Advantages

- Fast and durable initial tack
- Flexible joint
- High final strength
- Moisture resistant
- Excellent adhesive properties

Functionality

- Base: synthetic rubber in organic solvents
- Density [g/cm³]: 1.15 - 1.25
- Working time (depending on ambient conditions and subfloor properties) [min]: 10-20
- Full cure time [h]: 72
- Optimal bonding temperature [°C]: +15 - +25
- Application temperature [°C]: +10 - +30
- Optimal relative air humidity [%]: 60

Building Material

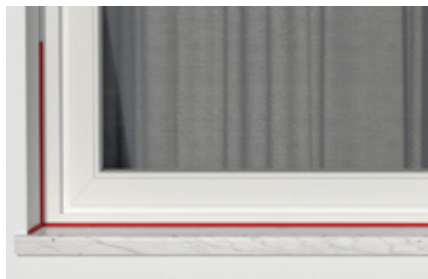
- Mirrors
- Wood
- Gypsum
- Cork
- Chipboard
- Metal
- Stones
- Foamed polystyrene
- Skirting-boards
- Floor panel
- Boards
- Ceramic tiles

Technical data

CRAFT SB						
Item	Item No.	Contents [ml]	Contents [g]	Type of packaging	Colour	Sales unit [pcs]
CRAFT SB beige (EN/AR)	559088	300	350	Cartridge	Beige	12

Crystal MS

The transparent sealant and adhesive for interior and exterior use.



Exterior sealing joints



Bonding of natural stone tiles and slabs
Bonding of glass on natural stone

Applications

Bonding and sealing in the construction and metal industries:

- sealing and connecting skirting-boards, panels, glaze, terracotta, wood, metals, metal plates, for selected types of surfaces in building such as glass, natural stone, marble, granite
- Filling gaps, joints, slots in stone, wood and other building materials
- Sealing and connecting building and construction elements made of glass, steel, natural stone

Building Material

- Aluminium
- Cast iron
- Galvanized sheet
- Stainless steel
- Ceramic tile
- Glass
- Raw wood (pine)
- Hard PVC (polyvinyl chloride)
- Granite
- Marble
- Cork
- Concrete
- Brick
- Natural Stone
- Masonry
- Enamel
- Glazed Surfaces

Technical Data

Advantages

- The transparent material enables almost invisible bonding and sealing.
- Due to the high-quality ingredients, Crystal MS avoids discolourations even on sensitive building materials such as natural stone.
- The high initial adhesive strength of ~180 kg/m² on all common building materials enables easy handling without additional pre-fixation.
- The high elasticity ensures tension-

Functionality

- Chemical base: 1k Hybrid MS Polymer
- Color, cured adhesive: Crystal clear
- Consistency: Paste
- Density: 1.05 g/ml ISO 2811
- Storage temperature range: +5 °C to +25 °C
- Shelf life: 15 months +5 to +25 °C
- Working temperature range: +5 to +40 °C
- Temperature resistance : -40 °C to 110 °C
- Cartridge temperature range: +0 - +25 °C
- Skin formation time: 5 - 50 min
- Hardness shore A40 ± 5
- High elasticity of 12.5%
- Tack free time: 5 - 15 min
- Curing rate: 4,5 mm/24h

- compensating adhesive joints as well as elastic joint seals and thus compensates for unevenness in the substrate.
- The CE marking according to DIN EN 15651 confirms the application for façade and sanitary joints indoors and outdoors for permanent use.
- The virtually odourless adhesive prevents odour formation in occupied areas for a pleasant indoor climate.

- Flow from vertical surfaces: 0 - 3 mm ISO 7390
- Fully cured after: 48 h 20 °C
- Max. gap fill bonding: < 2 mm sealing 6 - 25 mm
- Application One or both sided; entire surface, wavelike or in spots
- Solvent-isocyanate and silicon free
- Waterproof and seawater resistant
- Waterproof and seawater resistant
- Suitable for bonding non absorbent components
- Adheres even to dump surfaces

Certificates




EN 15651-1:2012 F-EXT-INT (12,5P)
EN 15651-3:2012 S (S1)

Item	Item no.	Contents	Contents	Packaging	Colour	Content per box	Sales unit
		[ml]	[g]			[St.]	[pcs]
Crystal MS	560065	290	300	Cartridge	crystal clear	12	1



10

Drills and bits

SDS Plus Drill Bit II Pointer - Economical 122 

Chisel - SDS Plus & Max 125 

High Speed Steel Drill Bits - HSS 127 

Hammer Drill Bit SDS plus II Pointer - Economical

The Most Economical Two-Flute Cutter - The SDS Plus Range of Drill Bits for Concrete



Faster Drilling Dust Removal



Fits All SDS Plus Hammers

10

Applications

- Drilling on the various schedule type of concrete
- It can be drilled on Masonry, Solid brick base material also.

Advantages

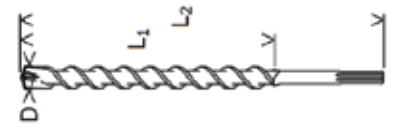
- The optimised drill bit geometry enables fast drilling progress, reduced wear and less effort.
- The centring tip allows easy and precise drilling and prevents slipping on smooth surfaces.
- The Sds pus Economical offers consistent quality and reliable performance
- fischer SDS Plus Economical's shank perfectly fits in all SDS plus hammers.

Characteristics



Building Materials

- Concrete
- Solid brick
- Sand-lime brick
- Masonry



Technical data

Hammer drill bit SDS Plus II Pointer · Drills and bits



Drill bit SDS Plus II Pointer - Economical

Item	Art.-No.	Drill hole diameter	Working Length	Total Length	Type of packaging	Contents	Sales unit
		d_0 [mm]	L_1 [mm]	L_2 [m]		[pcs]	[pcs]
Pointer EC 4/50/110	546812	4	50	110	Polybag	1	1
Pointer EC 5/50/110	546813	5	50	110	Polybag	1	1
Pointer EC 5/100/160	546814	5	100	160	Polybag	1	1
Pointer EC 5.5/50/110	546815	5.5	50	110	Polybag	1	1
Pointer EC 5.5/100/160	546816	5.5	100	160	Polybag	1	1
Pointer EC 6/50/110	546817	6	50	110	Polybag	1	1
Pointer EC 6/100/160	546818	6	100	160	Polybag	1	1
Pointer EC 6/150/210	546819	6	150	210	Polybag	1	1
Pointer EC 6.5/50/110	546820	6.5	50	110	Polybag	1	1
Pointer EC 6.5/100/160	546821	6.5	100	160	Polybag	1	1
Pointer EC 6.5/150/210	546822	6.5	150	210	Polybag	1	1
Pointer EC 7/50/110	546823	7	50	110	Polybag	1	1
Pointer EC 7/100/160	546824	7	100	160	Polybag	1	1
Pointer EC 8/50/110	546825	8	50	110	Polybag	1	1
Pointer EC 8/100/160	546826	8	100	160	Polybag	1	1
Pointer EC 8/150/210	546827	8	150	210	Polybag	1	1
Pointer EC 8/200/260	546828	8	200	260	Polybag	1	1
Pointer EC 8/400/460	546829	8	400	460	Polybag	1	1
Pointer EC 9/100/160	546830	9	100	160	Polybag	1	1
Pointer EC 9/150/210	546831	9	150	210	Polybag	1	1
Pointer EC 10/50/110	546832	10	50	110	Polybag	1	1
Pointer EC 10/100/160	546833	10	100	160	Polybag	1	1
Pointer EC 10/150/210	546834	10	150	210	Polybag	1	1
Pointer EC 10/200/260	546836	10	200	260	Polybag	1	1
Pointer EC 10/250/310	546837	10	250	310	Polybag	1	1
Pointer EC 10/400/450	546838	10	400	450	Polybag	1	1
Pointer EC 11/100/160	546839	11	100	160	Polybag	1	1
Pointer EC 12/100/160	546840	12	100	160	Polybag	1	1
Pointer EC 12/150/210	546843	12	150	210	Polybag	1	1
Pointer EC 12/200/260	546844	12	200	260	Polybag	1	1
Pointer EC 12/400/460	546845	12	400	460	Polybag	1	1
Pointer EC 13/100/160	546846	13	100	160	Polybag	1	1
Pointer EC 14/100/160	546848	14	100	160	Polybag	1	1
Pointer EC 14/150/210	546849	14	150	210	Polybag	1	1
Pointer EC 14/200/260	546850	14	200	260	Polybag	1	1
Pointer EC 14/400/450	546851	14	400	450	Polybag	1	1
Pointer EC 14/550/600	546852	14	550	600	Polybag	1	1
Pointer EC 15/100/160	546853	15	100	160	Polybag	1	1
Pointer EC 15/200/260	546854	15	200	260	Polybag	1	1
Pointer EC 16/100/160	546855	16	100	160	Polybag	1	1
Pointer EC 16/150/210	546856	16	150	210	Polybag	1	1
Pointer EC 16/250/310	546857	16	200	310	Polybag	1	1
Pointer EC 16/400/450	546858	16	400	450	Polybag	1	1
Pointer EC 17/150/210	546859	17	150	210	Polybag	1	1

Technical data

Item	Art.-No.	Drill hole diameter	Working Length	Total Length	Type of packaging	Contents	Sales unit
		d ₀ [mm]	L ₁ [mm]	L ₂ [mm]		[pcs]	[pcs]
Pointer EC 18/150/200	546860	18	150	200	Polybag	1	1
Pointer EC 18/250/300	546861	18	250	300	Polybag	1	1
Pointer EC 18/400/450	546862	18	400	450	Polybag	1	1
Pointer EC 19/150/200	546863	19	150	200	Polybag	1	1
Pointer EC 20/150/200	546864	20	150	200	Polybag	1	1
Pointer EC 20/250/300	546865	20	250	300	Polybag	1	1
Pointer EC 20/400/450	546866	20	400	450	Polybag	1	1
Pointer EC 22/200/250	546867	22	200	250	Polybag	1	1
Pointer EC 22/400/450	546868	22	400	450	Polybag	1	1
Pointer EC 25/200/250	546869	25	200	250	Polybag	1	1
Pointer EC 25/400/450	546870	25	400	450	Polybag	1	1
Pointer EC 26/250/300	546871	26	250	300	Polybag	1	1
Pointer EC 28/400/450	546872	28	400	450	Polybag	1	1
Pointer EC 30/400/450	546873	30	400	450	Polybag	1	1

Standard chisel - SDS Plus & Max

High-Performance Chisels with SDS Plus and SDS Max Drill Shank.



Concrete Chipping



Breaking Concrete

Applications

- Chipping of various schedule type of concrete & Masonry
- Breaking of various schedule type of concrete & Masonry

Advantages

- The SDS Plus and SDS Max drill chuck for the chisel enable the use with professional hammer drilling machines and ensure proven and safe transfer of force.
- The use of a high quality, specially

hardened steel with surface protection increases the life span of the tools.

- The high oscillation endurance allows for high work comfort and contributes to the achievement of clean results.

10

Characteristics



Building Materials

- Concrete
- Masonry
- Natural stone

Technical data

Standard chisel - SDS Plus & Max



Chisel Pointed/Flat - SDS Plus

Item	Art.-No.	Type	Length L [mm]	Width B [mm]	Contents [pcs]	Sales unit [pcs]
SDS Plus - Chisel pointed 250	504277	Pointed	250	-	1	1
SDS Plus - Chisel flat 20/250	504278	Flat	250	20	1	1

Technical data

Standard chisel - SDS Plus & Max



Chisel Pointed/Flat - SDS Max

Item	Art.-No.	Type	Length L [mm]	Width B [mm]	Contents [pcs]	Sales unit [pcs]
SDS Max - Chisel pointed 400	504282	Pointed	400	--	1	1
SDS Max - Chisel pointed 600	504283	Pointed	600	--	1	1
SDS Max - Chisel flat 25/400	504286	Flat	400	25	1	1
SDS Max - Chisel flat 25/600	504287	Flat	600	25	1	1

10

High Speed Steel Drill Bits - HSS

Metal Drill Bits HSS-G with Fully Grounded Split Point - Basic Plus, DIN 338



TOLERANCE H8
MATERIAL HSS
POINT GRINDING SPLIT POINT
POINT ANGLE 135° FROM
POINT THINNING SURFACE Ø 3.0 MM
DIN 14 12.
FORM C
BRIGHT



Efficient Chip Removal



Fast and Efficient Drilling

Building Materials

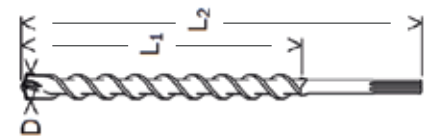
- Steel alloys
- Cast iron
- Sintered iron
- Graphite
- Bronze
- Tempered cast iron
- Bronz iron and
- Hard plastic

Advantages

- Made of robust HSS steel and in accordance with DIN 338.
- Robust drill bit with high break resistance.
- Precision ground from solid stock for long service life and high precision.
- Split point for optimum centring and little feed force effort.

- 135° tip angle for quick drilling progress.
- Optimum chip removal through type N

10



Technical data

High Speed Steel Drill bit - HSS-G							
Item	Art.-No.	Drill hole diameter d_0 [mm]	Working length L_1 [mm]	Total length L_2 [mm]	Type of packaging	Contents [pcs]	Sales unit [pcs]
HSS-G 1.5/18/40	539200	1.5	18	40	Plastic box	10	1
HSS-G 2.0/24/49	539201	2.0	24	49	Plastic box	10	1
HSS-G 2.5/30/57	539202	2.5	30	57	Plastic box	10	1
HSS-G 3.0/33/61	539203	3.0	33	61	Plastic box	10	1
HSS-G 3.5/39/70	539204	3.5	39	70	Plastic box	10	1
HSS-G 4.0/43/75	539205	4.0	43	75	Plastic box	10	1
HSS-G 4.5/47/80	539206	4.5	47	80	Plastic box	10	1
HSS-G 5.0/52/86	539207	5.0	52	86	Plastic box	10	1
HSS-G 5.5/57/93	539208	5.5	57	93	Plastic box	10	1
HSS-G 6.0/57/93	539209	6.0	57	93	Plastic box	10	1
HSS-G 6.5/63/101	539210	6.5	63	101	Plastic box	10	1
HSS-G 7.0/69/109	539211	7.0	69	109	Plastic box	10	1
HSS-G 7.5/69/109	539212	7.5	69	109	Plastic box	10	1
HSS-G 8.0/75/117	539213	8.0	75	117	Plastic box	10	1
HSS-G 8.5/75/117	539214	8.5	75	117	Plastic box	5	1
HSS-G 9.0/81/125	539215	9.0	81	125	Plastic box	5	1
HSS-G 9.5/81/125	539216	9.5	81	125	Plastic box	5	1
HSS-G 10.0/87/133	539217	10.0	87	133	Plastic box	5	1
HSS-G 10.5/87/133	539218	10.5	87	133	Plastic box	5	1
HSS-G 11.0/94/142	539219	11.0	94	142	Plastic box	5	1
HSS-G 11.5/94/142	539220	11.5	94	142	Plastic box	5	1
HSS-G 12.0/101/151	539221	12.0	101	151	Plastic box	5	1
HSS-G 12.5/101/151	539222	12.5	101	151	Plastic box	5	1
HSS-G 13.0/101/151	539223	13.0	101	151	Plastic box	5	1



11

Abrasives

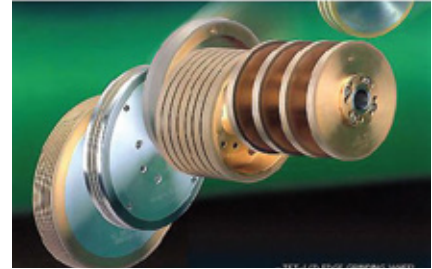
Metal Grinding Disc	130	
Metal Cutting Disc	131	
Metal Cutting Disc for Chop Saw Machines	132	
Ultra-Thin Stainless-Steel Cutting Disc	133	
Flap Disc - Aluminium Oxide	134	
Flap Disc - Zirconia Inox	135	
Glass Fiber - Safety Guarantee	136	

Metal Grinding Disc

Metal Grinding Disc for Small and Large Angle Grinders



Back Gauging



Edge Grinding

Applications

- Back gauging
- Edge grinding

Advantages

- Up to 35% higher dust removal rate as compared to others in the same class.
- A unique product design with specially engineered grain and bond system with a coarse and fine grit size combination system.
- Revolutionary design with light weight and unmatched grinding efficiency.

- The new construction and design enables it to cover a wide range of applications like back gauging, V grooving and light foundry.
- Promises a uniform finish with improved productivity and machine life.

Certificates



Building Materials

- Midsteel
- Aluminium

Available standard sizes

4", 4.5", 5", 7", and 9" - 6 mm thickness



Technical data



Metal grinding disc				
Item	Item No.	PAK/Pcs relation	EAN code (PAK)	PAK in inner carton (KAR)
Metal grinding disc 100/6/22.23 mm (4" x 1/4" x 7/8")	539051	1	4048962267570	15
Metal grinding disc 115/6/22.23 mm (4.5" x 1/4" x 7/8")	539052	1	4048962267587	10
Metal grinding disc 125/6/22.23 mm (5" x 1/4" x 7/8")	539053	1	4048962267594	40
Metal grinding disc 180/6/22.23 mm (7" x 1/4" x 7/8")	539054	1	4048962267600	20
Metal grinding disc 230/6/22.23 mm (9" x 1/4" x 7/8")	539055	1	4048962267617	10

Metal Cutting Disc

Metal Cutting Disc for Small and Large Angle Grinders



Clean Cut Quick Cut



Cutting Threaded Rod



Cutting Solid Metal Rod

Applications

- Heavy duty metal cutting
- Metal pipe cutting

Advantages

- Specially engineered design offers much higher product life with a faster cut-rate.
- Suitable for both mild and stainless steel materials.
- Up to 25% higher life than competition in its class, assuring you considerable cost savings.

- The faster cut-rate compared to the competition allows for higher productivity and reduces operator fatigue.

11

Certificates



Building Materials

- Midsteel
- Aluminium

Available standard sizes

4", 4.5", 5", 7", and 9" - 3 mm thickness



Technical data



Metal cutting disc				
Item	Item No.	PAK/Pcs relation	EAN code (PAK)	PAK in inner carton (KAR)
Metal cutting disc 100/3/16 mm (4" x 1/8" x 5/8")	539067	1	4048962267730	25
Metal cutting disc 115/3/22.23 mm (4.5" x 1/8" x 7/8")	539068	1	4048962267747	25
Metal cutting disc 125/3/22.23 mm (5" x 1/8" x 7/8")	539069	1	4048962267754	100
Metal cutting disc 180/3/22.23 mm (7" x 1/8" x 7/8")	539070	1	4048962267761	40
Metal cutting disc 230/3/22.23 mm (9" x 1/8" x 7/8")	539071	1	4048962267778	20

Metal Cutting Disc for Chopsaw Machines

High Quality, Efficient Cutting Discs for Chopsaw Machines



Clean Cut Quick Cut

extra clean CUT **fast CUT**



Channel Cutting



Cutting Metal Pipe

Applications

- Heavy duty metal cutting
- Metal pipe cutting

Advantages

- Specially engineered product to improve productivity in cutting applications.
- A unique blend of higher life and cut-rate in comparison to competition suitable for use on all types of steel.
- Single reinforced chopsaw for faster cutting and higher productivity and product life of

up to 20% higher than competition in its class enables considerable cost savings.

Certificates



Building Materials

- Midsteel
- Aluminium

Available standard sizes

12", 14", 16" 3 mm thickness

41 - Straight cut-off wheel

Technical data



Metal cutting disc for chopsaw

Item	Item No.	PAK/Pcs relation	EAN code (PAK)	PAK in inner carton (KAR)
Metal cutting disc 305/3/25.4 mm (12" x 1/8" x 1")	539072	1	4048962267785	10
Metal cutting disc 355/3/25.4 mm (14" x 1/8" x 1")	539073	1	4048962267792	10
Metal cutting disc 405/3/25.4 mm (16" x 1/8" x 1")	539074	1	4048962267708	10

Ultra-Thin Stainless Steel Cutting Disc

Ultra Thin Stainless Steel Cutting Discs for Small and Large Angle Grinders



Clean Cut Quick Cut



Cutting Solid Stainless Steel Rod



Cutting Channel

Applications

- Channel cutting
- Metal pipe and rod cutting

Advantages

- Specially engineered design offers much higher product life with a faster cut-rate.
- Suitable for both mild and stainless steel materials.
- Up to 30% higher life than competition in its class, assuring you considerable cost savings.
- The faster cut-rate compared to

the competition allows for higher productivity and reduces operator fatigue.

Certificates



Building Materials

- Stainless Steel
- Midsteel
- Aluminium

Available standard sizes

4", 4.5", 5", 7", and 9" - 1 mm - 1.9 mm thickness

41 - Straight cut-off wheel

Technical data



Ultra thin stainless steel cutting discs				
Item	Item No.	PAK/Pcs relation	EAN code (PAK)	PAK in inner carton (KAR)
Ultra thin stainless steel cutting disc 100/1.0/16 mm inox (4" x 0.04" x 0.62")	539075	1	4048962267815	50
Ultra thin stainless steel cutting disc 115/1.0/22.23 mm inox (4.5" x 0.04" x 0.87")	539076	1	4048962267822	50
Ultra thin stainless steel cutting disc 125/1.0/22.23 mm inox (5" x 0.04" x 0.87")	539077	1	4048962267839	50
Ultra thin stainless steel cutting disc 180/1.6/22.23 mm inox (7" x 0.06" x 0.87")	539078	1	4048962267846	25
Ultra thin stainless steel cutting disc 230/1.9/22.23 mm inox (9" x 0.07" x 0.87")	539079	1	4048962267853	25

Flap Disc - Aluminium Oxide

All New Aluminium Oxide Flap Discs with Innovative Design and Increased Productivity for Metal Surfaces



Edge Deburring



Weld Stock Removal

Applications

- Edge deburring and chamfering
- Weld stock removal and edge blending
- Surface cleaning and finishing rust removal

Advantages

- High productivity and life with strong glass fibre backing.
- Synthetic backing with premium aluminium oxide grains.
- The best choice for fast stock removal.
- Angled flaps provide greater contact when removing stock on flat surface.

- Durable and fray resistant with better cut rate.

Certificates



Building Materials

- Midsteel

Available standard sizes

4" & 4.5"
Available Grit : 40, 60, 80 & 120



Type 29 conical for both contoured surface and edge work

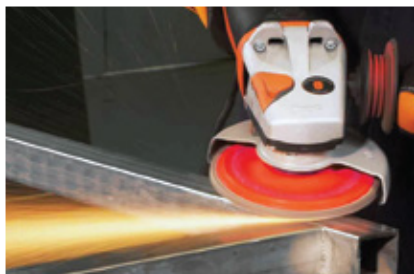
Technical data



Flap Disc - Aluminium Oxide				
Item	Item No.	PAK/Pcs relation	EAN code (PAK)	PAK in inner carton (KAR)
Flap Disc Aluminium Oxide 100x16mm 40 Grit	548452	1	4042205365153	10
Flap Disc Aluminium Oxide 100x16mm 60 Grit	548453	1	4042205365160	10
Flap Disc Aluminium Oxide 100x16mm 80 Grit	548454	1	4042205365177	10
Flap Disc Aluminium Oxide 100x16mm 120 Grit	548455	1	4042205365184	10
Flap Disc Aluminium Oxide 115x22.23mm 40 Grit	548456	1	4042205365191	10
Flap Disc Aluminium Oxide 115x22.23mm 60 Grit	548457	1	4042205365207	10
Flap Disc Aluminium Oxide 115x22.23mm 80 Grit	548458	1	4042205365214	10
Flap Disc Aluminium Oxide 115x22.23mm 120 Grit	548459	1	4042205365221	10

Flap Disc - Zirconia Inox

All New Zirconia Inox Flap Discs with Innovative Design and Increased Productivity for Stainless Steel Surfaces.



Stainless-Steel Metal Fabrication



Weld Stock Removal

Applications

- Stainless steel metal fabrication
- Weld stock removal and surface cleaning
- Weld blending on stainless steel vessels

Advantages

- High productivity and consistent material removal and finish.
- Best in class backing with zirconia alumina grains.
- Angled flaps provide greater contact when removing stock on flat surfaces.
- Best choice for fast stainless steel stock removal.
- Strong glass fibre backing.

Certificates



Building Materials

- Stainless Steel
- Midsteel

Available standard sizes

4" & 4.5"
Available Grit : 40, 60, 80 & 120



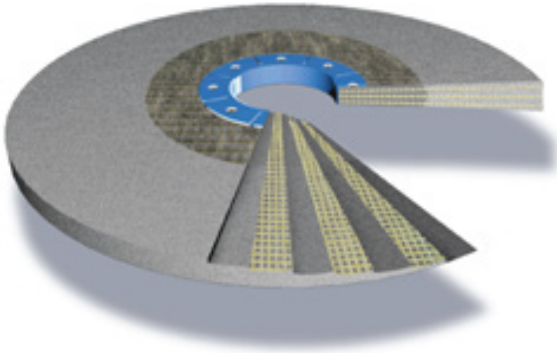
Technical data



Type 29 conical for both contoured surface and edge work

Flap Disc - Zirconia Inox				
Item	Item No.	PAK/Pcs relation	EAN code (PAK)	PAK in inner carton (KAR)
Flap Disc Zirconia Inox 100x16mm 40 Grit	548460	1	4042205365238	10
Flap Disc Zirconia Inox 100x16mm 60 Grit	548461	1	4042205365245	10
Flap Disc Zirconia Inox 100x16mm 80 Grit	548462	1	4042205365252	10
Flap Disc Zirconia Inox 100x16mm 120 Grit	548463	1	4042205365269	10
Flap Disc Zirconia Inox 115x22mm 40 Grit	539080	1	4048962267860	10
Flap Disc Zirconia Inox 115x22mm 60 Grit	539081	1	4048962267877	10
Flap Disc Zirconia Inox 115x22mm 80 Grit	539082	1	4048962267884	10
Flap Disc Zirconia Inox 115x22mm 120 Grit	539083	1	4048962267891	10

Glass Fiber - Safety Guarantee



Features

- Most regular cloth / fabric, due to automatic weaving of reinforcement, competitor do not have weave
- Resin coated glass fiber, in house fischer process
- Match of resins, resin of fiber glass coating matches perfectly with abrasive bond resin controlled weight / m², glass fiber weight per m² is permanently controlled

Benefits

- Plain / even glass reinforcement layers avoid imbalance
- Highest safety against breakage
- Regular wear profile of wheels
- No chipping off (of large abrasive grain parts)
- Consistent performance, reliability

Product Application Chart

	Product category	Grinding Applications											Cutting applications - job type										
		Surface grinding	Chamfering	Weld removal	Back-gauging	Burr removal	Beveling	Surface conditioning	V-grinding	Edge grinding	SS grinding	Fettling	General fabrication	Rectangular pipe	Solid bar	Round pipe	Channel	Angle	Plate	Tor steel	MS sheet	SS sheet	
Grinding	9" DCD	●	●	●	●	●	●	●	●	●	●	●											
	7" DCD	●	●	●	●	●	●	●	●	●	●	●											
	4.5" DCD	●	●	●	●	●	●	●	●	●	●	●											
	4" DCD	●	●	●	●	●	●	●	●	●	●	●											
Cutting	4" UTW																				●	●	
	4.5" UTW																				●	●	
	9" COW												●	●	●	●	●	●	●				
	7" COW															●	●	●	●				
	4.5" COW															●	●	●	●				
	4" COW															●	●	●	●				
	Chopsaw													●	●	●	●	●	●	●	●		

DCW - Depressed Centre Disc
 UTW - Ultra Thin Wheel
 COW - Cut Off Wheel

Recommended Safety Norms for all Cutting & Grinding Wheel



Wear protective goggles



Wear dust mask



Wear ear protectors



Wear protective gloves



Wear protective shoes



Protect yourself



Remove plug from socket



Cordless tool
(independent of mains supply)



Important information



12

12

Power tools

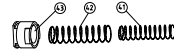
Power Drive F35

140



Power Drive F35 - Spare Parts

142

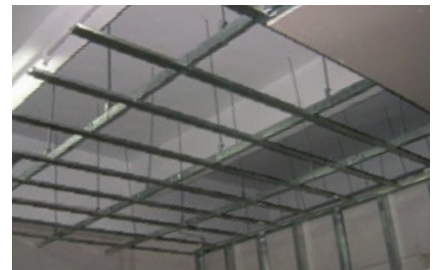


Power Drive F35

Powder Actuated Power Drive F35 Stud Driver Allows for Easy Installation (8 mm tool)



Wire Mesh Installation on Concrete



Fixing False Ceiling

Applications

- Installation of wire mesh on concrete
- Fixing of false ceilings and more

Advantages

- Optimum adaptation with 3 cartridge strengths and 6-step power control.
- Extremely flexible with a large selection of fastener elements for a wide range of fixing applications.
- Short standstill times thanks to extremely simple care and maintenance.
- High performance allowing fastener elements of up to 62 mm in length to be driven in without pre-nailing.

Building materials

- Steel
- Concrete
- Solid Bricks
- Lime Bricks

Certificates

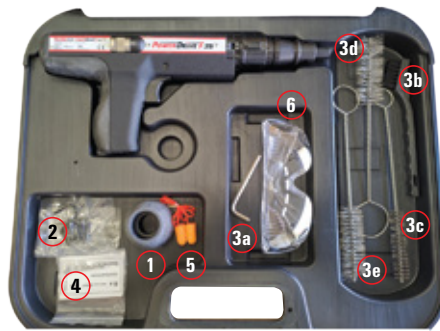


Technical data



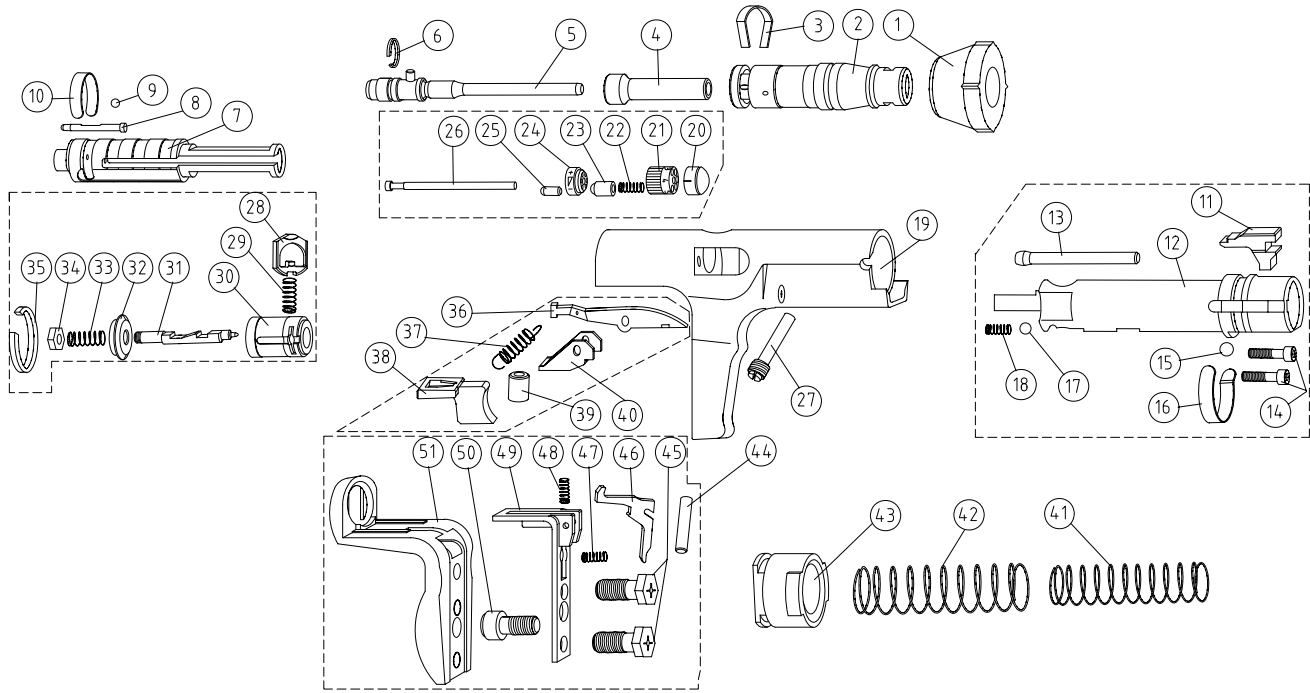
Power drive F35							
Item	Item No.	Weight (kg)	Tool length (mm)	Max. Length of fastener element (mm)	Max. recommended driving frequency (studs/h)	Power control	Sales unit (pcs)
F35	510000	2.35	340	62	500	3 cartridge strengths and 6-step power control by means of regulation knob	1

Powerdrive F35 - Toolkit



Item	Item No.	Description	Sales unit
1	510003	Stabilizer	1
2	510005	Shear clip	5
3a - 3e	510256	F35 cleaning kit -- 4 x Brushes and 1 x Allen kit	1
4	510017	Steel ball	5
5	510258	Ear protector with straptabilizer	1
6	510259	Safety goggles, standard model	1
--	510001	F35 transport case	1
--	510002	F35 operating manual (en)	1

Power Drive F35 - Spare Parts



Technical data

Item	Item No.	Description	Sales unit
1	510003	Stabilizer	1
2	510004	Baseplate 2/S-13 Standard	1
3	510005	Shear clip	5
4	510006	Fastener guide 2/F-3 Standard	5
5	510007	Piston body assembly	5
6	510008	Piston ring	10
7	510009	Piston guide	1
8	510010	Regulation pin	10
9	510011	1/8" steel ball	10
10	510012	C clip for piston guide	10
11	510013	Piston stop	10
12	510014	Steel liner assembly	1
13	510015	Pressure pin	10
14	510016	Front allen cap screw M6x25	10
15	510017	Steel ball	5
16	510018	Annular ball spring	10
17	510019	Strip pressure ball	10
18	510020	Compression spring	10
19	510021	Housing	1
20	510022	Decorative bullet head	10
21	510023	Regulation knob	5
22	510024	Compression spring	10
23	510025	Snap for knob head	10
24	510026	Advance lever guide	5
25	510027	Release lever pin	10
26	510028	Release lever pin	10

Item	Item No.	Description	Sales unit
27	510029	Threaded pin	10
28	510030	Sear	10
29	510031	Compression spring	10
30	510032	Spring guide	5
31	510033	Firing pin	10
32	510034	Spring detent	10
33	510035	Compression spring	10
34	510036	Firing pin nut	10
35	510037	Retention ring	10
36	510038	Release lever	10
37	510039	Advance lever spring	10
38	510040	Trigger	5
39	510041	Advance lever bushing	10
40	510042	Advance lever guide	5
41	510043	Firing pin spring (left-hand)	5
42	510044	Firing pin spring (right-hand)	5
43	510045	End cap	5
44	510046	Release lever pin	10
45	510047	Front cap screw	10
46	510048	Release lever	10
47	510049	Compression spring	10
48	510050	Compression spring	10
49	510051	Support strip assembly	10
50	510052	Handle allen screw	10
51	510053	Rubber grip	1
7 - 10	510054	Kit 1: Piston assembly guide	1

P.A.T - Annexure

General information and compatibility

Ptb Approval Symbol



The fischer Power Drive F35 Stud Driver is type approved and system-tested. The tool therefore bears the approval symbol of the PTB in square form with the approval number S 818. fischer thereby guarantees the conformity with the approved design. Faults discovered during use must be reported to the responsible head of the approvals authority (PTB) and to the office of the Permanent International Commission for Firearms Testing (C.I.P.).

Fixing in concrete

Effective anchoring depth (h_{ef})

- For fixtures in concrete, the effective anchoring depth (h_{ef}) is the determining factor for the selection of the appropriate fastener element. The effective anchoring depth (h_{ef}) is dependent on the compressive strength of the concrete.

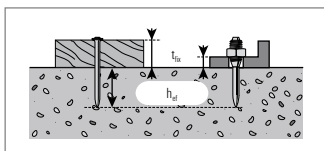
Compressive strength of concrete	Effective anchoring depth (h_{ef})
C16/20	30-35 mm*
C20/25	25-30 mm*
C30/37	20-25 mm*

* The values shown are indicative values. Several test fixings should be carried out in the base material to determine the exact values for the installation situation.

Concrete shaft length of the fastener element

- The correct shaft length (L) is determined by the thickness of the part of the fixed (t_{fix}) and the effective anchoring depth (h_{ef}) using the following formula:

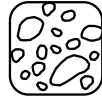
$$L = t_{fix} + h_{ef}$$



For fixtures with stud bolts, the necessary shaft length

- corresponds to the effective anchoring depth (h_{ef}), the thickness of the part to be fixed (t_{fix}) does not have to be taken into consideration.

Material Suitability



fischer studs marked in this annex are suitable for applications in concrete, solid brick and solid lime-sand brick.



fischer studs marked in this annex are suitable for applications in steel with a thickness of ≥ 4 mm.

Fixing in steel

Effective anchoring depth (h_{ef})

- For fixtures in steel, the effective anchoring depth (h_{ef}) is the determining factor for the selection of the appropriate fastener element. The effective anchoring depth (h_{ef}) is dependent on the tensile strength of the steel.

Tensile strength of the steel (f_{tk})	Effective anchoring depth (h_{ef})
360 N/mm ²	12 mm
510 N/mm ²	10 mm

* The values shown are indicative values. Several test fixings should be carried out in the base material to determine the exact values for the installation situation.

Correct shaft length of the fastener element

- The correct shaft length (L) is determined by the thickness of the part to be fixed (t_{fix}) and the effective anchoring depth (h_{ef}). If proper penetration of the base material is desired, an allowance of 6 mm must be made (see following formulae).

Correct shaft length without penetration of the base material:

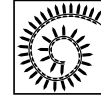
$$L = t_{fix} + h_{ef}$$

Correct shaft length with proper penetration of the base material:

$$L = t_{fix} + h_{ef} + 6 \text{ mm}$$

For fixtures with stud bolts, the necessary shaft length corresponds to the effective anchoring depth (h_{ef}) plus 6 mm allowance,

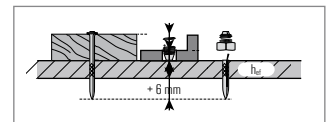
Studs In Magazine



fischer studs marked in this annex are supplied in magazines of 10 studs and can only be used in stud drivers having a suitable magazine.

the thickness of the part to be fixed (t_{fix}) does not have to be taken into consideration.

$$L = h_{ef} + 6 \text{ mm}$$





13

13

Services

Our Service to you	146
Subsidiaries	152

Our service to you.

“We are a reliable partner, one that will stand at your side and address your individual requirements with advice and action.”

By implementing the fischer process system (fPS) we offer you the quickest and most efficient service.



Global presence with the fischer international sales team

- One-on-one assistance from multi lingual staff.
- Immediate information and individual solutions regarding the widest range of fixings and fasteners worldwide.
- 50 own subsidiaries and distribution to more than 100 countries worldwide.
- Visit organization A-Z and training programs.



Qualified technical consulting from the fischer technical team

- Support for engineers, consultants and craftsmen.
- More than 130 engineers worldwide give legally compliant technical advice and product recommendations.
- Services include test installations, pull-out tests, individual designs and comparative calculations.
- Special solutions in the scope of fixing technology.





Competence and innovation through own research, development and production

- Market research of trends and customer requirements.
- Own research and development teams for chemical, steel and plastic fastenings.
- In-house tool making, special machine construction and production facilities for total process control.
- fischer Process System (fPS) ensures innovative and high quality products.

13

Wide range of fastening and supplementary products for professional and DIY customers

- Comprehensive assortment of chemical, steel and plastic fastenings.
- Supplementary ranges of installation systems, construction chemicals, wood screws, drill bits, facade systems etc.
- Broadest coverage of applications.
- Standard products, project-based solutions and customer-specific developments.





Professional training sessions with the fischer academy

- Wide range of seminars for craftsmen, engineers and specialist dealers.
- Fixing technology at its best based on over 30 years of training experience.
- Theoretical knowledge and practical exercises in line with the demands of the approval.
- Full service programme in modern training rooms, including accomodation.
- Numerous seminar offers online or on site.



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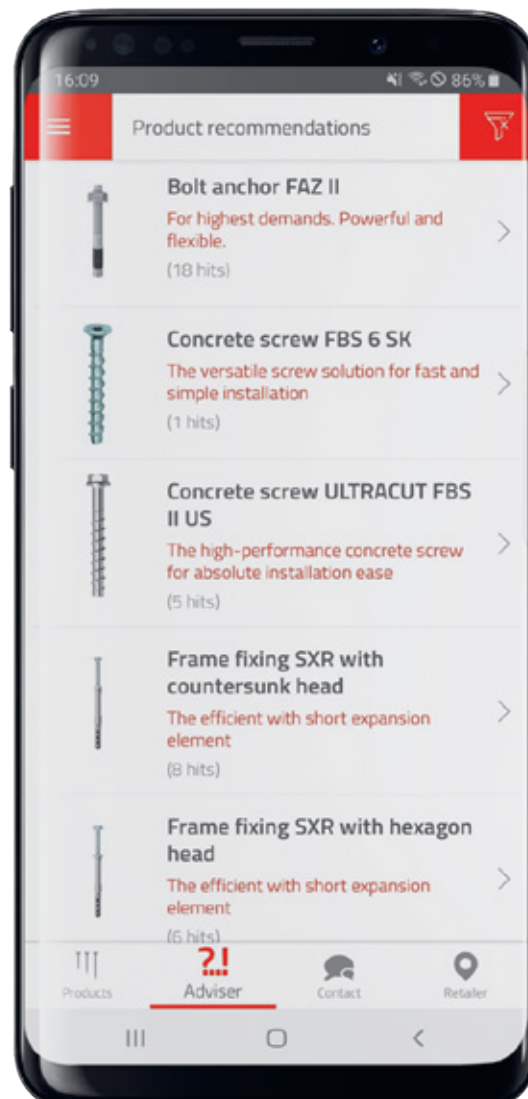
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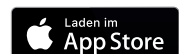


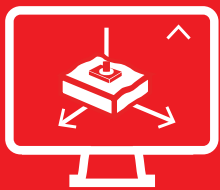
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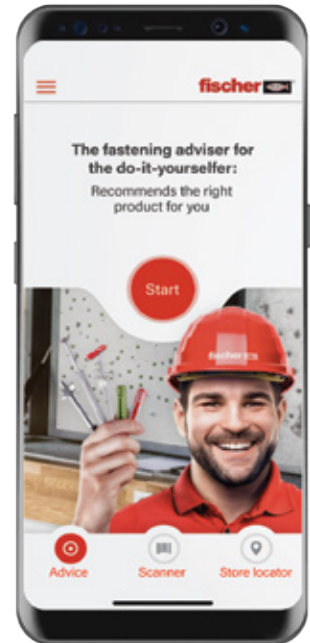
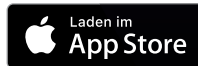
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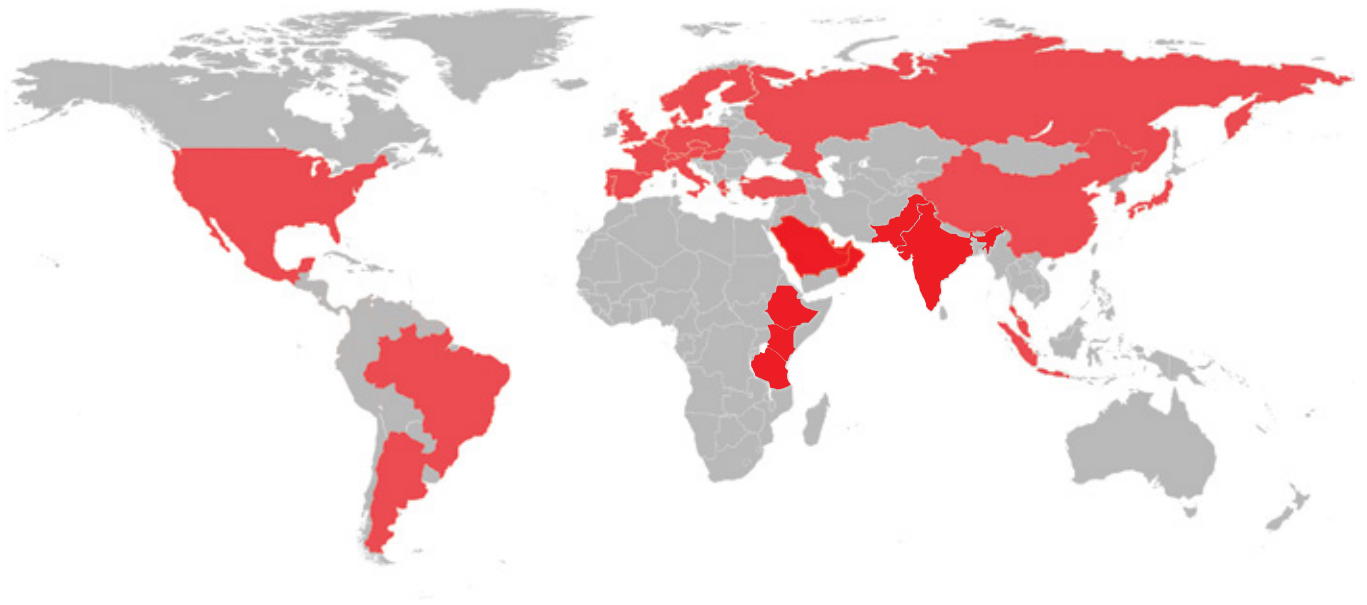
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